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Business School | Middlesex University London
Centre for Enterprise and Economic Development Research (CEEDR)

Territorial capital and firm performance: evidence from Italian regions

Valentina Morretta

M00473081

Director of Studies: Stephen Syrett

Supervisors: Leandro Sepúlveda Ramírez and Michela Vecchi

A thesis submitted to the Business School of Middlesex University in partial fulfilment
of the requirements for the degree of Doctor of Philosophy.

London, May 2017.

Declaration

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Abstract

The aim of this thesis is to examine whether and how the coexistence of different local assets, conceptualized in the form of *territorial capital*, influences firm performance in diverse sectors, across different geographical areas of Italy, contributing to endogenous economic development. The notion of *territorial capital* conceived as a mix of tangible and intangible local resources accumulated in a certain place, incorporates several notions which have been extensively studied within the field of economic geography but provides a distinctive emphasis upon the coexistence and combination of these resources as a defining characteristic of different territories.

This study is pursued through a mixed method approach, based on the collection of quantitative and qualitative data. The quantitative analysis is conducted across 20 Italian regions and considers 12 different economic sectors where firms operate. The sample includes about 92,000 companies; the analytical framework is based on the derivation of a measure of Total Factor Productivity (TFP) at firm level, where the contribution of factor inputs is estimated using a Cobb-Douglas production function. The analysis then focuses on the relationship between TFP and a set of different territorial resources at regional level from 2004 to 2012. The qualitative analysis consists of 26 semi-structured interviews conducted with SME owner-managers. Firms are selected in two different regions (Lombardia and Sicily) representing 'extreme cases' and in three different sectors (ICT, Accommodation and Food services, Manufacturing). The pursuit of qualitative analysis allows the exploration of *how* the coexistence of different local resources influences firms' performance, and whether they represent a source of competitive advantage from the perspective of entrepreneurs themselves.

Results from the mixed method analysis show that both tangible and intangible territorial resources are an important source of firm performance, with varying effect across regions and sectors. More specifically, this analysis contributes to the *new growth theory*, potentially opening new frontiers of research, aimed at explaining long run productivity in terms of endogenous factors and mechanisms based within the coexistence of inputs rooted within different territories. Secondly, this research contributes empirical knowledge pertinent to theories of *endogenous development* as it supports the idea that a factor of competitiveness can be found within territories; in particular it demonstrates that the presence of territorial capital may increase firm productivity and generate competitive advantages related to location. Finally, this study contributes empirical knowledge to the *resource based theory* of the firm as it explains how territorial capital, in the same way as firms' internal resources, can become a source of sustainable competitive advantage for firms. In particular the analysis highlights the importance of *created advanced resources* or 'capabilities' at the local level, which are produced through long term investment, in contrast to *inherited basic resources* provided by 'God' or ancestors.

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To my country and my beautiful region: Sicily

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Chapter 1: Introduction

1.1 Research Aim

The aim of this research is to investigate *whether* and *how* the coexistence of different 'local resources',¹ conceptualized in the form of *territorial capital*, affects the performance of Italian firms, in diverse sectors and across different geographical areas, contributing to the process of endogenous development.

1.2 Rationale and background

In the free market economy, regions within the same country are often characterized by different performances, and the role of macroeconomic factors has been criticized as insufficient in the explanation of territorial disparities (Organisation for Economic Co-operation and Development - OECD, 2001). While *exogenous* macroeconomic forces, coming from outside the local system (i.e. monetary policies, foreign direct investments) are essential in driving growth and well-being, it is argued that *endogenous* factors are becoming increasingly important in determining regional competitiveness (Stimson *et al.*, 2011), and that prosperity is ever more dependent on how well each city and region can achieve its potential (OECD, 2001).

According to the endogenous development approach, each place could find the basis for competitiveness from within its own territory, making use of material and immaterial assets which may be unique or not easily found in other places. These local assets may be comprised of local regional specificities, uniqueness, territorial identity, and localized tacit knowledge, which may become a source of competitive advantage for firms (Tödtling, 2010). In addition, the identification and consideration of these assets might also bring non-economic benefits by increasing, for example, the sense of community, local pride, social capital and quality of life in general in an optic of sustainable economic development (Vanclay, 2011).

¹ Local resources are here defined as a stock of tangible and intangible assets existing within places, including attributes and capabilities that can help a local contexts to function effectively (definition provided by Oxford, 2005 and re-elaborated by the author). In this research, the terms resources, assets, and territorial capital components are used interchangeably.

Emerging from this view the OECD advanced the concept of *territorial capital* that “refers to the stock of assets which form the basis for endogenous development in each city and region, as well as to the institutions, modes of decision-making and professional skills to make best use of those assets” (2001: 13). This concept embraces different ideas frequently studied in the field of economic geography, such as agglomeration, social capital and institutions, while stressing, at the same time, the importance of a *co-existence* of assets that characterize different areas within a country. Indeed, each place is characterized by a *mix* of different forms of tangible and intangible capital such as localized human capital (i.e. population, education level, creativity), natural capital (i.e. natural resources, environment), productive capital (i.e. firms, industrial districts), social capital (i.e. networking and cooperation capabilities), physical capital (i.e. housing, infrastructures), cultural capital (i.e. heritage, landscape and so on; Throsby, 1999) that could be exploited for economic purposes.

Although the power of this theory has not yet been fully acknowledged by mainstream economists, the concept of territorial capital lays the foundation for innovative ways to identify causes of regional disparities, development potential and possible sources of territorial competitive advantages. For instance, according to Tödtling (2010), firms that exploit these local specificities may gain significant competitive advantages, fostering regional economic development processes. Furthermore, it is argued that territorial capital may influence the efficiency and productivity of local economic activities and might also acquire an economic value if transformed into marketable products (Camagni, 2008; Camagni and Capello, 2009).

The focus on firms, as the unit of analysis of this study is motivated by the fact that their performance is important to regional competitiveness; however, the relationship between business’ performance and territorial capital has been scarcely investigated within existing research. Thus, by looking at the role played by local resources upon firms’ performance, it is also possible to understand the importance of territorial capital in the process of endogenous development better.

The impetus for this research is also based on the fact that endogenous development ‘rhetoric’ has been particularly well received in Italy, the country in which the empirical study is conducted. A range of Italian scholars across the social

sciences (Dematteis and Governa, 2005; Garofoli, 2002; Società dei Territorialisti, 2014²) strongly argue in favour of the idea that economic development should draw upon the valorisation of local tangible and intangible assets, and that firms can find their competitive advantage within their own territories. Moreover, Italian regions appear to be well-equipped with unique territorial assets; for instance, Italy has the greatest number of UNESCO World Heritage Sites in the world³ that, if transformed into marketable products, services and experiences, could increase the competitiveness of the Italian economy in the global market. Furthermore, in Europe, and in the Italian context in particular, there is a strong belief that territories are important for competitiveness and that regional development should derive, or at least be connected to, an effective valorisation of existing economic, social, cultural and environmental conditions (European Union, 2011).

Yet, despite the fact that during the last twenty years a vast amount of literature has been published and much theoretical speculation has been made on endogenous development, very little empirical investigation has examined the role of territorial capital in promoting firm productivity and growth.

1.3 Research Objectives and Questions

This research aims at achieving two main objectives:

- 1) To explore the concept of territorial capital by unpacking its main components and features through an in depth review of the literature;
- 2) To investigate *whether* and *how* local resources (individually and combined in the form of territorial capital) contribute to firm performance, in diverse sectors and across different geographical areas, both quantitatively and qualitatively, through a secondary and primary data analysis.

² www.societadeiterritorialisti.it Accessed on April 2nd, 2014; h:4.00 pm. *Società dei Territorialisti* is a high-level Board of Experts of various disciplines with the aim of developing a scientific debate on territorial sciences, promoting policy guidelines and tools for governance, disseminating findings, developing international relations and so on.

³ <http://www.unesco.it/cni/index.php/siti-italiani> Accessed on April 2nd, 2014; h: 1.54 pm

The above objectives will be achieved by answering the main research question:

Does territorial capital contribute to firm performance and how?

The methodological framework is then specifically set up to answer a set of sub-questions:

Rq1) What territorial resources drive performance of Italian firms? (Quantitative analysis)

Rq2) How do territorial resources influence firm performance? (Qualitative analysis)

Rq3) What territorial resources drive firm performance across different geographical areas and economic sectors? (Quantitative and Qualitative analysis)

1.4 Methodology

This study adopts a mixed-method approach based on quantitative and qualitative analysis, following a nested strategy (Creswell, 2003). Hence, the two methods not only complement and strengthen each other, but also aim at answering different research sub-questions, collecting information at different levels (Creswell, 2003). In particular, the quantitative methodology is adopted to answer questions *Rq1* and *Rq3*, while the qualitative methodology provides additional information to answer questions *Rq2* and *Rq3*. The mixed-method approach has been chosen to analyze the impact of local resources from two different points of view, combining econometric results with an in-depth analysis. As suggested by Taylor and Plummer (2011), using multi methods for local development studies will help in critically understanding and explaining the reality.

The quantitative analysis aims at investigating whether different territorial assets, accumulated across Italian regions, play a role in firms' productivity. To achieve this goal, two different databases are built and integrated. The first database (*Firms database*) includes data on 91,652 Italian firms operating in 12 sectors, downloaded from the AIDA Bureau van Dijk dataset which contains comprehensive information on commercial companies collected and re-elaborated from their official financial statements (IV CEE Directive). The second database (*Territorial Database*) is built with the aim of quantifying different components of territorial capital as also recommended

by Camagni and Capello (2013) as an objective for future research. Territorial variables are downloaded from different public datasets available at ISTAT (Istituto Nazionale di Statistica), Ministero dello Sviluppo Economico, among others, and are used as proxies to quantify territorial capital. To find useful and solid proxies, a critical analysis of the previous theoretical and empirical work is performed. Furthermore, some elements of territorial capital are quantified by using a combination of different proxies through the use of factor analysis.

After merging the Territorial capital database with the Firm database, for the period from 2004 to 2012, panel data analysis is used to estimate a Cobb-Douglas production function at firm level; from this, a measure of Total Factor Productivity (TFP) is derived and regressed on different tangible and intangible dimensions of territorial capital, for the overall sample and by dividing companies into different geographical areas and industrial sectors.

The operationalization of the notion of territorial capital via secondary data analysis is characterized by a number of constraints and often fails to draw out the precise process through which territorial capital contributes to firms' performance; therefore, this research adds a deeper level of analysis by studying *how* territorial capital influences firms, becoming a source of competitive advantage in two different Italian provinces (Milan and Palermo). Moreover, the qualitative method aims at gaining a deeper insight into the reality, overcoming the limits of the quantitative analysis by capturing the multidimensionality of territorial capital caused by the use of proxies.

The qualitative procedure consists of 26 semi-structured interviews conducted with firm owner-managers. Interviewees were asked to explain how different tangible and intangible resources affect their performance.⁴ The selection of companies follows purposive techniques, according to a double strategy; it includes firms working within the same sectors in 2 different provinces, and firms working in three different sectors within the same provinces, as discussed further in Chapter 4. Hence, while the quantitative analysis is conducted at regional level, due to the existence of better data

⁴ The qualitative analysis emphasizes firms' performance in terms of turnover growth. In fact, the concept of productivity is not always easily understood by all entrepreneurs.

availability, the qualitative analysis is conducted at provincial level to capture territorial specificities better.

Lastly, results from the two studies are combined, providing different levels of information and seeking convergence and complementarities, to clarify and integrate the results of one method with the other (Greene *et al.*, 1989; Johnson and Onwuegbuzie, 2004).

1.5 Expected contribution to Knowledge, originality and impact

This study combines two areas of research: the first is related to the *endogenous development approach* and, more specifically, the study of territorial capital; the second concerns the analysis of firm performance, growth and productivity related to *new growth theories and a Resource Based View* of the firm.

With respect to the first area, Tóth (2014) shows how mainstream researchers have focused on explaining the contribution of territorial capital to aggregate macro performance, such as regional GDP or employment. Most studies are based on econometric analysis referring to regions NUTS2⁵ (Capello *et al.*, 2009; Camagni and Capello, 2009, 2013; Brasili *et.al.*, 2012) or provinces NUTS3 (Lo Cascio *et al.*, 2013; Camagni *et al.*, 2011; Perucca, 2013; Fratesi and Perucca, 2014) as geographical units of interest. One of the most problematic aspects of this type of analysis is the lack of sufficient secondary data to quantify different dimensions of territorial capital, in particular at provincial level, where data are scarce or available only for a limited number of years. Moreover, studies that combine territorial variables to macro variables such as regional GDP are more likely to be affected by endogeneity problems in econometric estimations. As discussed in Fazio and Piacentino (2010), the inclusion of data at the firm level, next to data at the territorial level, can overcome the problem of endogeneity, which is typical of studies that rely on aggregated data only.

With regard to the second area of research, concerning the study of firms' performance, much of economic and business research focuses on the importance of firms' internal factors such as entrepreneurial abilities or firm strategy (Storey, 1994;

⁵ Nomenclatura Unità Territoriali (NUT) is a hierarchical system for dividing the economic territory of the European Union.

Dobbs and Hamilton, 2007), often neglecting the importance played by local contexts. Quantitative studies simply use dummy variables as proxies of geographical location (Hoogstra and Van Dijk, 2004). This research attempts to quantify and explain geographical differences existing among territories, in terms of local resources endowments.

Taking into account the combination of the two aforementioned areas of study (territorial capital and firm's performance), researchers have focused on the importance of a single territorial asset, such as human, social and institutional capital on firm performance (Backman, 2014; Westlund and Bolton, 2003; Lasagni *et al.*, 2015). In contrast, this thesis argues that the analysis of single factors is not sufficient to explain the firm-territory relationships fully and that each local resource should be analyzed in relation to the presence of other territorial components. In fact, to date, there are no studies that empirically investigate the impact of territorial capital (conceptualized as combination of local resources) on firm performance.

Only one study, realized by Marrocu *et al.* (2012), has been found to follow a similar approach to the quantitative part of this research. This paper simultaneously analyzes the role of human capital, technological capital, social capital and public infrastructure in firms' productivity, comparing 116 regions in 6 European countries. However, the analysis is limited to four dimensions of territorial capital and considers only firms in the manufacturing and services sector. In contrast, the quantitative analysis of this research compares 12 economic sectors and considers a much wider set of territorial variables. Other studies that can be comparable to the quantitative part of this research are Aiello *et al.* (2014) and Fazio and Piacentino (2010), although their approach is based on multilevel models. In terms of qualitative analysis, no similar studies have been found in the literature with exception of Rota (2010) and Barzotto *et al.* (2016), based on case studies and interviews with multinationals companies in the North of Italy.

Furthermore, it is important to highlight the difference between this study and previous research on *local system*, *industrial districts*, *milieu* and *space spillovers* which have been studied within the field of economic geography and development. The first difference is terminological: as clarified in 2.4, concepts such as districts and milieu are

incorporated in the definition of territorial capital but, just for instance, not all regions, which might be well-endowed with different elements of territorial capital, are economically organized in industrial districts. The second difference is more conceptual: in the theory of districts, milieu and spillovers, space is mainly conceived as a container where actors interact with each other, generating positive externalities (Capello, 2011). In this research, *territory* is not only the geographical place where firms interact, but it is also conceived as an economic resource itself (Capello, 2011), as an additional input which influences the production function.

Thus, the theoretical contribution of this analysis can be framed within new growth and endogenous development theories. The new growth theory explains long-run productivity in terms of endogenous mechanisms such as different production structures (Stiroh, 2001) which can vary from one place to another. Similarly, the endogenous development approach is based on the idea that local resources might become a source of economic competitive advantage for territories and firms, increasing their efficiency and productivity (Storper, 1997; Garofoli, 2002; Camagni, 2008, 2009; Camagni and Capello, 2009, 2013).

Another potential theoretical contribution of this research can be found within the framework of Resource Based Theory which argues that firms may develop a competitive advantage when they exploit valuable, rare, not imitable and non-substitutable resources (Barney, 1991). While firms' internal resources such as physical, human and organizational capital are essential in developing competitive advantages (Barney, 1991), it is important to investigate whether and how territorial resources may constitute a source of competitive advantage as well.

In terms of its practical contribution, this research has a twofold outcome. Firstly, it shows possible advantages and disadvantages related to firms' location choice, as different local contexts, with their resource endowment, may influence firms' performances in diverse ways. Secondly, results may inform local/regional policies, suggesting strategies for policy interventions to develop key industries in the area.

1.6 Structure of the thesis

This thesis is divided into seven chapters and is structured as follows:

INTRODUCTION: Chapter 1 has presented the rationale and background of the research as well as outlining the research questions, methodology and possible contribution to knowledge.

LITERATURE REVIEW: Chapter 2 introduces the concept of territorial capital, and its main components and features within the economic geography literature. It reviews the main characteristics of the endogenous development approach, highlighting its strengths and pitfalls; it also stresses the importance of the activation and release of territorial potential as a strategy for regional development. Chapter 3 reviews the literature on firms' performances, focusing on the concept of productivity, and competitive advantages. It investigates the major factors contributing to firms' performance, both internal and external. The chapter also discusses how territorial resources could impact firms.

METHODOLOGY: Chapter 4 describes the overall methodological research framework. It justifies the research philosophy adopted and the rationale for choosing a mixed-method approach. It also discusses the main steps of the quantitative and qualitative analysis, leaving the discussion of more technical methodological details to Chapters 5 and 6.

ANALYSIS: Chapter 5 presents the quantitative analysis, its specific methodological approach and main results. This chapter seeks to answer *Rq1* and *Rq3* and is built on testing three main hypotheses. Chapter 6 seeks to answer *Rq2* and *Rq3* and is divided into two main parts. The first part describes the qualitative analysis, its specific methodological approach and main results; the second part presents a comparison between quantitative and qualitative results, where the main interviews' themes are used to validate, reinterpret and supplement the econometric findings.

CONCLUSION: Chapter 7 presents the summary and conclusion of this research, its limitations and suggestions for future research.

Figure 1.1 provides an overview of how different activities of this study were carried out from October 2013 until May 2017.

Figure 1.1: Timetable of activities

| | Oct-13 | Nov-13 | Dec-13 | Jan-14 | Feb-14 | Mar-14 | Apr-14 | May-14 | Jun-14 | Jul-14 | Aug-14 | Sep-14 |
|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Literature Review | | | | | | | | | | | | |
| Secondary data Collection | | | | | | | | | | | | |
| Writing | | | | | | | | | | | | |
| | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 | Jul-15 | Aug-15 | Sep-15 |
| Quantitative Analysis | | | | | | | | | | | | |
| Writing | | | | | | | | | | | | |
| | Oct-15 | Nov-15 | Dec-15 | Jan-16 | Feb-16 | Mar-16 | Apr-16 | May-16 | Jun-16 | Jul-16 | Aug-16 | Sep-16 |
| Quantitative Analysis | | | | | | | | | | | | |
| Primary data Collection | | | | | | | | | | | | |
| Qualitative Analysis | | | | | | | | | | | | |
| Writing | | | | | | | | | | | | |
| | Oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 | Mar-17 | Apr-17 | May-17 | Jun-17 | Jul-17 | Aug-17 | Sep-17 |
| | | | | | | | | | | | | |
| Writing | | | | | | | | | | VIVA | | |

Chapter 2: The importance of territorial capital in local economic endogenous development

2.1 Introduction

The aim of this chapter is to unpack the concept of territorial capital and highlight its importance and originality within the literature of endogenous development. In every country, there are significant differences in socio-economic performance across regions, suggesting that many of the essential determinants of this performance are to be found at the sub-national level (Porter, 2003). In this regard, the endogenous development approach relies on the idea that factors of competitiveness should be also detected within territories⁶ (Dicken and Malmberg, 2001) as a responsive strategy to ineffective top down policies implemented in the 1960s and 1970s, which were exclusively based on the importance of macroeconomic factors (Tödtling, 2010).

The notion of ‘territorial capital’ refers to the *“stock of assets which form the basis for endogenous development in each city and region, as well as to the institutions, modes of decision-making and professional skills to make best use of those assets”* (OECD, 2001:13). Despite the extreme complexity and comprehensiveness of this concept, its closer analysis may be central to understanding how localities may trigger and drive a process of sustainable economic development. In fact, the identification and exploitation of valuable assets which coexist within places may help local actors in gaining important competitive advantages, enabling local areas to release their potential and follow their specific path of evolution (Storper, 1997; Garofoli, 2002; Camagni, 2008).

This chapter is divided into nine sections: section 2.2 provides information about the theoretical background of territorial capital, describing the main features of the endogenous development approach and its interconnection with exogenous development; 2.3 introduces and explores the definition of territorial capital,

⁶ Territories, intended as containers and producers of territorial capital, can assume different scales and be identified as cities, regions, nations or other units of economic functional areas. In this study, territories assume the geographical scope of regions and provinces intended as country’s subnational administrative entities.

explaining why the use of the term ‘capital’ can be considered appropriate for the purpose of this research; 2.4 highlights the differences and similarities between territorial capital and other concepts commonly studied in the literature of economic geography; 2.5 provides an overview of the different components of territorial capital and their importance in the literature, differentiating between intangible in 2.5.1 and tangible resources in 2.5.2; 2.6 reviews the main studies on territorial capital conceptualized as a combination of resources, highlighting its importance on regional growth and development; 2.7 introduces the local actors involved in the process of territorial capital valorisation, stressing the importance of intangible forms of assets; 2.8 highlights some limitations and drawbacks of the endogenous development approach which constitutes the ground of the theory of territorial capital, while 2.9 presents a summary and conclusion of the chapter.

2.2 Endogenous and exogenous local economic development

The aim of this section is to give an overview of the theoretical background of the concept of territorial capital, describing the main features of the endogenous development approach. Although *exogenous factors*, those originating from outside the local system such as monetary and fiscal policies, international competition, and foreign direct investments, among others, are important to development, they present limitations (Vázquez-Barquero, 2003). In fact, economic performance is also determined by processes that occur on the ground within local contexts (Vázquez-Barquero, 2003; Scott and Storper, 2007) and can be influenced by several local systems’ conditions of inertia, such as the lack of a local entrepreneurial culture (Pike *et al.*, 2006; Capello *et al.*, 2009).

There is a lack of a consensual definition of endogenous development, but several conceptualizations can form the basis of an understanding for this research project. Endogenous development can be broadly defined as a *process of mobilization* of locally specific resources (Isaksen, 2001) or internal factors (Stohr, 1990, cited in Tödtling, 2010). To explain the difference between exogenous and endogenous development, it is important to consider three different perspectives of analysis (see Figure 2.1). The first is related to the *top down approach*, where the role of extra local actors and

exogenous macroeconomic variables is the determinant in the process of development. Yet, while economic development may occur with only a limited role being played by local factors (Ascani *et al.*, 2012), more than 50 years of exogenous strategies, based on the traditional top down approach, have not been capable of addressing the key territorial problems and promote sustainable development (Rodríguez-Pose and Tijmstra, 2009). In particular, it is argued that this approach has often been characterized by a lack of linkages with local socio-economic characteristics, rendering some territories more dependent on external assistance (Martinelli, 1998, cited in Moulaert and Sekia, 2003; Rodríguez-Pose and Tijmstra, 2009) (i.e. fiscal policies promoting the diffusion of multinational corporations to rural areas).

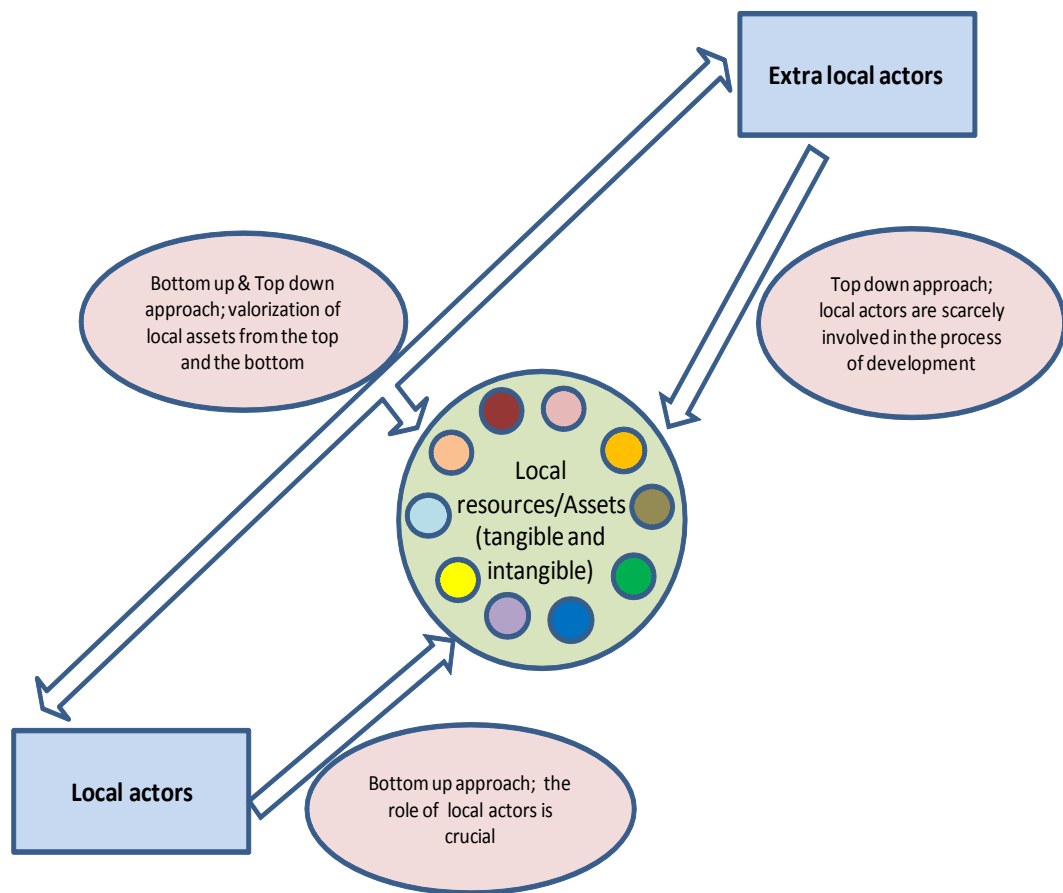
The second perspective is related to the *bottom up approach*, in that local actors play a crucial role in initiating the development process by activating endogenous factors. These factors include territorial resources and capabilities, as will be explained in 2.5. Therefore, territories possess economic, human, institutional and cultural resources, among others, which may constitute their development potential and open a differentiated path towards growth (Garofoli, 2002; Vázquez-Barquero, 2003).

The third perspective, which directly evolves from the second, relies on the continuous interaction between the aforementioned top down and bottom up approaches through the interplay of exogenous and endogenous factors. The *integrated approach* (Crescenzi and Rodríguez-Pose, 2011) is based on the understanding that local resources, the basis for endogenous development, need also to be continuously stimulated and influenced by exogenous factors. Thus, endogenous development should not be interpreted as an autarkic process (Moulaert and Sekia, 2003), but as a result of both endogenous and exogenous variables and their interaction (Tödtling, 2010). It is an efficient combination of those factors that creates the basis for regional prosperity and well-being.

In recent years, the macroeconomic approach to development has made significant efforts in considering local specificities (Crescenzi and Rodríguez-Pose, 2011); for example, top down policies can valorise the socio-economic characteristics of targeted areas (i.e. fiscal policies promoting the diffusion and strengthening of local

manufacturing). Yet, even though certain local resources and capabilities may be stimulated at an extra local level (i.e. EU Structural Policies), the role of the local community and local actors remains essential (Vázquez-Barquero, 2003; Rodríguez-Pose and Tijmstra, 2009).

Figure 2.1: A graphical representation of local development processes: exogenous (top down), endogenous (bottom up) and integrated approach (top down and bottom up)



Source: Author's own

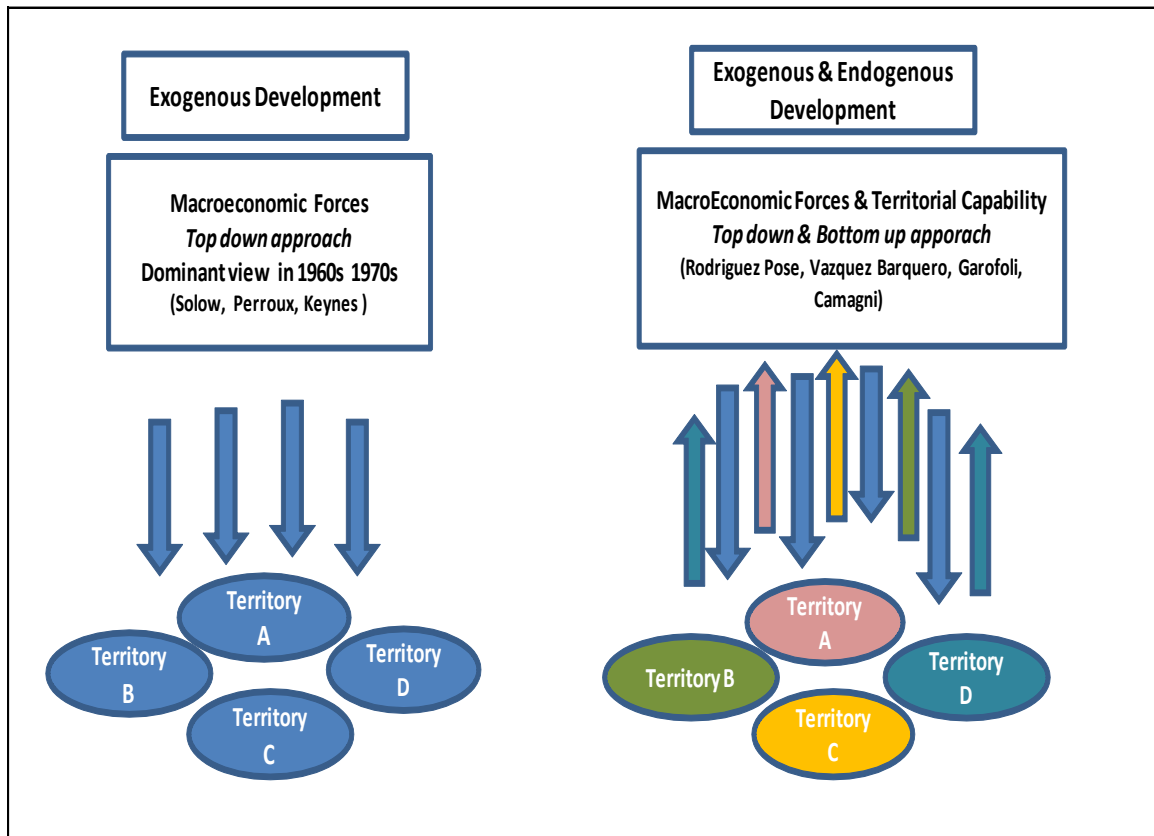
In this research, endogenous development refers to the third perspective, considering the integration and essential interconnection between endogenous and exogenous forces (see Figure 2.2). In fact, even though exogenous top down forces are important, the absence of reverse bottom up forces, originated from within the local system, would leave a territory with the mere role of a passive entity. Accordingly, each region should be able to find the basis for competitiveness from within its own territory, making use of material and immaterial assets, which can be unique or not easily found in other places (Ascani *et al.*, 2012). These local assets may be comprised of local regional specificities, uniqueness, territorial identity, and localized tacit knowledge, which may also become a source of competitive advantage for firms (Tödtling, 2010).

Moreover, according to Vázquez-Barquero (2003), the process of endogenous development refers to the *capital accumulation* process of specific territories, and on the functioning of the *forces* that condition this accumulation, such as entrepreneurial development, the formation of firm networks, diffusion of innovation and knowledge, and the change and adaption of institutions. Therefore, by adopting the integrated approach, endogenous development can be defined as the process through which both endogenous and exogenous forces of different natures and intensity *build*, *mobilize* and *enhance* local resources and capabilities to improve the quality of life and well-being of a certain place. As previously explained, regardless of the endogenous or exogenous origin of those forces, the role of the local community and local actors is essential (Vázquez-Barquero, 2003; Rodríguez-Pose and Tijmstra, 2009).

In addition, it is argued that the endogenous development aims at creating diversified, resilient and sustainable local economies (Vanclay, 2011); it valorises the local, and its values; it is *multifunctional*, in that it provides other non-economic outcomes such as environmental protection, maintenance of cultural heritage and landscape management. In fact, the identification and valorisation of local assets might increase the sense of community, local pride, social capital and quality of life in general (Vanclay, 2011). It could also help to build the local areas' capacity to resist broader forces of global competition, fiscal crisis or social exclusion (Shucksmith, 2000). Thus, local development and its quantitative dimension (i.e. GDP growth) is integrated with

the qualitative one (Pike *et al.*, 2006); it may combine economic, social and ecological sustainability, create higher quality jobs, and promote embedded investments (Pike *et al.*, 2006).

Figure 2.2: A graphical representation of the endogenous and exogenous development approach



Source: Author's own

2.3 The concept of territorial capital: why capital?

In 2001, emerging from the approach of endogenous development, the OECD introduced the concept of 'territorial capital' in the following terms:

Each area has a specific capital — its 'territorial capital' — that is distinct from that of other areas and is determined by many factors. These factors may include the area's geographical location, size, factor of production endowment, climate, traditions, natural resources, quality of life or the agglomeration economies provided by its cities, but may also include its business incubators and industrial districts or other business networks that reduce transaction costs. Other factors may be 'untraded interdependencies' such as understandings, customs and informal rules that enable economic actors to work together under conditions of uncertainty, or the solidarity,

mutual assistance and co-opting of ideas that often develop in clusters of small and medium-sized enterprises working in the same sector (social capital). Lastly, according to Marshall, there is an intangible factor, 'something in the air', called the 'environment' and which is the outcome of a combination of institutions, rules, practices, producers, researchers and policy-makers, that make a certain creativity and innovation possible (2001: 15).

This concept was further developed by Camagni (2008), referring to a set of local assets and potentials that should be fully and wisely exploited to promote local development. Camagni provides, for the first time, a taxonomy of territorial capital by classifying its components according to their degree of materiality (from tangible to intangible) and rivalry (from private to public), as shown in Figure 2.3.

Figure 2.3: A classification of territorial capital according to materiality and rivalry

| | | | | |
|--------------------|--|--|--|---|
| Rivalry | High rivalry (private goods) | <u>Private fixed capital stock</u> | <u>Relational private services operating on:</u> - external linkages for firms - transfer of R&D results <u>University spin-offs</u> | <u>Human capital:</u> - entrepreneurship - creativity - private know-how <u>Pecuniary externalities (soft)</u> |
| | | <u>Pecuniary externalities (hard)</u> | | |
| | | <u>Toll goods (excludable)</u> | | |
| | (club goods) | <u>Proprietary networks</u> | <u>Cooperation networks:</u> - strategic alliances in R&D and knowledge - p/p partnerships in services and schemes <u>Governance of land and cultural resources</u> | <u>Relational capital:</u> - cooperation capability (trust) - collective action capability (participation) - collective competencies |
| | (impure public goods) | <u>Collective goods:</u> - landscape - cultural heritage (private 'ensembles') | | |
| | (public goods) | <u>Resources:</u> - natural - cultural (punctual) <u>Social overhead capital:</u> - infrastructure | <u>Agencies for R&D transfer</u> <u>Receptivity enhancing tools</u> <u>Connectivity</u> <u>Agglomeration and district economies</u> | <u>Collective action:</u> - conventions - behavioural codes - representations - values |
| Low rivalry | | Tangible goods (hard) | Mixed goods (hard + soft) | Intangible goods (soft) |
| Materiality | | | | |

Source: (Camagni, 2008: 34)

However, while the OECD definition may appear too unstructured and vague, the taxonomy conceptualized by Camagni (2008) provides an excessive number of details without always identifying a clear link with the theory. This may leave the attribution of each component of territorial capital to each quadrant of Figure 2.3 to the subjectivity of the researcher. For instance, 'landscape' or 'cultural heritage' considered by Camagni as tangible and impure public goods could be interpreted as mixed goods (both tangible and intangible) by other researchers who wish to account for intangible characteristics linked to the concept of beauty or culture to differentiate these assets from other forms of tangible capital. These assets could also be considered purely private goods in case they are not accessible by the public. The same reasoning could be conducted for other elements of Figure 2.3 such as 'convention' and 'behavioural codes' that can be considered as 'club goods' in case these belong to a restricted group of people rather than to the entire community.

Using the framework of Camagni (2008) as a reference point, this study takes into account to the materiality classification, identifying those tangible and intangible components of territorial capital that have been more extensively considered in the literature. However, before unpacking the notion of territorial capital, the most pertinent question is to ask whether, in these circumstances, the use of this term can be considered appropriate.

The notion of 'capital' is traditionally accepted and used to indicate "*a stock of durable (usually tangible) assets, themselves often the result of past production, put to use in the production process, and thereby generating a flow of goods and services over time*" (Dean and Kretschmer, 2007: 575). Whilst traditional forms of capital are included in the idea of territorial capital, this is also composed of *intangible* or *hybrid* forms such as human and social capital. Intangible capital presents peculiar characteristics: its quantification is arduous; it is not homogeneous; it does not reside with an individual but in the networks and relationships between individuals, and its ownership is ambiguous (Dean and Kretschmer, 2007). Furthermore, it is not tied to a specific economic actor; it is not a stock but a dynamic process; and it is usually not separable from its location (Dean and Kretschmer, 2007).

With respect to local resources, these can be defined as a stock of tangible and intangible assets existing within places, including attributes and capabilities that can help local contexts to function effectively.⁷ It could be argued that all local resources/assets, through a continuous process of accumulation and interaction across space and over time, become territorial capital. This process can be determined by causality (natural resources), stimulated by local and/or extra local actors, intentionally or unintentionally produced (Camagni, 2008). Moreover, due to local resources continuously accumulating (or dissolving), homogenous sets of resources could themselves be defined as types of capital (for example, intellectual resources vs human capital).

To sum up, it is possible to refer to the concept of territorial 'capital', according to its specific characteristics:

- 1) Accumulation process: local resources continuously accumulate or dissolve, across space and time, in the form of capital, following different accumulation processes. In most cases, they are not stocks but a dynamic process; the coexistence of different forms of capital (for example, human capital, natural capital) within places can be defined as territorial capital.
- 2) Economic exploitability: local resources can be used, directly and/or indirectly to produce goods and services; territorial capital may influence the efficiency and productivity of local economic activities and might also acquire an economic value if transformed into marketable products (Camagni, 2008; Camagni and Capello, 2009).
- 3) Place-based ownership: regardless of their private or public ownership, local resources are usually not separable from their location.

Furthermore, Camagni and Capello (2009; 2013), in an empirical analysis based on 259 NUTS2 European regions, have demonstrated that territorial capital, with other classic forms of capital, is subject to decreasing returns to scale, arguing that positive benefits attributable to its increment are less evident in those regions where the level of territorial capital is higher. More specifically the authors consider four different territorial dimensions which are: 1) entrepreneurship, measured as the share of self-

⁷ Definition provided by Oxford (2015) and re-elaborated by the author

employment on total employment; 2) creativity, proxied by the share of science and technology employment on total employment; 3) transport infrastructure and 4) receptivity, measured as that part of regional growth depending on neighbouring regions. The empirical analysis is based on a model of regional growth and shows that the higher the territorial capital the better is the overall regional performance. However, the effect of territorial capital increase on regional growth is weaker in those regions where level of territorial capital is higher, such as agglomerated and mega regions.

2.4 The roots of territorial capital in economic geography

It is important to recall that territorial capital is not an innovative concept, but one that gathers and embraces elements commonly studied in the field of economic geography such as institutions, social capital, industrial districts and agglomeration. In effect, the definition given by the OECD (2001) may appear similar to other concepts, for example, the *local productive system*; yet, in reality, while these two concepts may overlap, the local productive system focuses exclusively on a subset of elements of territorial capital strictly linked to productive activities such as workforce, means of production, or the social and political context in which the process of production takes place (Garofoli, 2002).

The concept of *industrial district*, defined as a:

geographically localized productive system, based on a strong local division of work between small firms specialized in different steps in the production and distribution cycle of an industrial sector, a dominant activity or a limited number of activities (Moulaert and Sekia, 2003: 291),

is another that appears similar to territorial capital. Industrial districts are incorporated in the definition of territorial capital, but the concept acknowledges that economic activities of regions are not always organized in industrial districts.

A similar analogy can be found in the concept of *local milieu*, which includes the system of relations among territorial actors and focuses on their cognitive ability to make a strategic decision for the productive system (Vázquez-Barquero, 2003). Therefore, the milieu refers to the networking component of local actors, through

which collective learning and innovation are generated (Vázquez-Barquero, 2003). In this regard, Camagni (2008) states that local milieu can be assimilated to the concept of relational capital, which is a subcomponent of territorial capital.

Other intangible elements, frequently studied in the field of economic geography such as the *industrial atmosphere*, *untraded interdependencies*, or *institutional thickness* (Becattini, 1990; Storper 1995; Amin and Thrift, 1995) among others, may be also incorporated via the concepts of relation, social and institutional capital and, as will be explained later, consequently integrated within the concept of territorial capital.

Lastly, there is connection between the notion of territorial capital and *agglomeration economy*. In fact, it could be argued that the accumulation of local resources would increase under conditions of agglomeration. This is certainly true for most elements of territorial capital, for example, infrastructure, linkage of firms, or institutions; but it might not be valid for other subcomponents such as natural capital that can be depleted in presence of human agglomerates.

In conclusion, territorial capital is a complex multidimensional concept that embraces, interconnects and integrates various ideas from the field of economic geography in a more comprehensive way, deserving closer analysis. In particular, it refocuses the attention on the *co-existence* of different local factors that, mixed together, characterize the peculiarity and the potential of each place.

2.5 Territorial capital: main components, characteristics and features

To understand the key aspects of territorial capital and its role in development better, the definition given by the OECD (2001) and the reinterpretation provided by Camagni (2008) can be expanded by describing the main components in a more systemic way. More specifically, this study adopts the classification of materiality, distinguishing between tangible and intangible components of territorial capital, identifying and describing those types of capital that have been more extensively studied in the literature (Figure 2.4).

Local assets or *resources* which compose territorial capital can be classified according to different criteria (for example, public vs private, material vs immaterial,

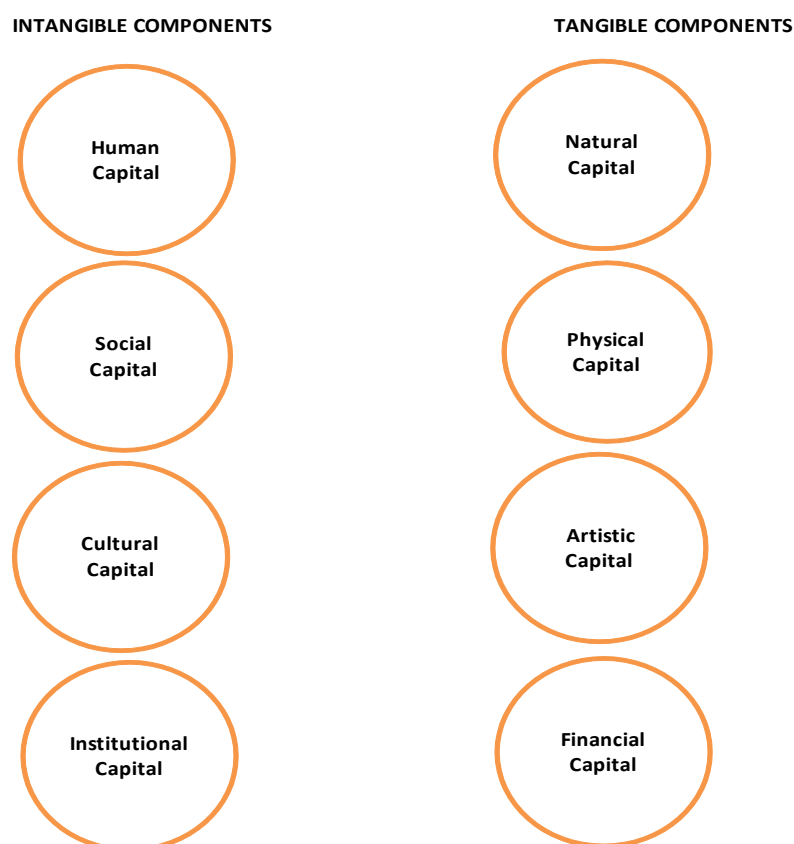
natural vs anthropic, functional vs relational, see Camagni, 2008; Servillo *et al.*, 2012) and, as previously explained, these may accumulate across territories in the form of both classic (tangible) and hybrid (intangible) capital. This process of accumulation can be determined by causality but it is often stimulated by human activity (Camagni, 2008). Therefore, it is possible to conceptualize territorial capital as the co-existence of sub-forms of capital derived from the accumulation of various resources.

However, the classification and allocation of each type of resource to a form of capital is not easy or straight forward; conceptually, there is no clear line of demarcation between different forms of capital: the boundaries are blurred and concepts often overlap. Moreover, there is often confusion among terms such as intangible resources/assets, and capabilities. According to Hall (1992, 1993) and Galbreath (2005), if intangible resources are *something owned*, they can be considered as assets; if they are *something that can be done*, they should be considered as a capability, usually tacit in nature (Galbreath, 2005). However, this distinction can be problematic and it is not always possible to distinguish intangible assets from capabilities (Galbreath, 2005) due to their interconnectedness and the way they influence each other. This is exemplified by the fact that the higher the quality of immaterial resources, the better the level of related capabilities and vice versa. For example, high quality institutional capital could be associated with better 'governance' capabilities and vice versa, or high quality human capital could be associated with strong 'learning' and 'innovation' capabilities and vice versa. Moreover, capabilities may accumulate in the form of intangible capital (for example, creative capital) becoming *something owned* and therefore an asset. To overcome this conceptual trap, terms such as intangible assets, intangible resources, and capabilities are used interchangeably.

Figure 2.4 gives an overview of the main components of territorial capital, frequently discussed in the literature and considered in this study, which will be better described in the next two sections. The aim here is not to provide a detailed review of all potential components of territorial capital, but to focus exclusively on those aspects that are relevant for the subject of this research. In particular, this study considers, among intangible components, *human capital* existing at local level, with particular

attention to its *cognitive* and *creative* dimensions (Black and Lynch, 1996; Florida, 2002; Keeley, 2007; Piergiovanni *et al.*, 2012); *social capital* taking in consideration the aspects of *relations*, *civic sense* and *trust* among people (Fukuyama, 1995; Camagni 2008; Guiso *et al.*, 2010; Malecki, 2012); *cultural capital*, which includes values, beliefs and traditions existing within a locality (Throsby 1999; Tabellini 2010); *institutional capital*, considering both formal and informal rules existing at local level (North 1990; Rodríguez-Pose, 2013). Among tangible components, this study considers *natural capital* such as natural resources and environment existing within a locality (i.e. water, oil, mountains, sea) (Jabareen, 2008); *physical capital*, including housing and infrastructures (Servillo *et al.*, 2012); *artistic capital* such as monuments and landscapes (Throsby, 1999); and *financial capital*, considering private and public financial resources available within territories (Todaro and Smith, 2009; Guiso *et al.*, 2009).

Figure 2.4: Tangible and intangible components of territorial capital considered in this study



2.5.1 Intangible components of territorial capital

This section provides an overview of the main intangible forms of territorial capital considered in this study, in which the definitions and main works of reference are summarized in the first part of Table 2.1. As explained in section 2.3, intangible forms of capital present peculiar characteristics: they are not homogeneous; their quantification is arduous; they do not reside with an individual but in the networks and relationships between individuals; and their ownership is ambiguous (Dean and Kretschmer, 2007). Moreover, they are not a stock but a dynamic process, and they are not usually separable from their location (Dean and Kretschmer, 2007).

One of the most important assets frequently discussed in the literature is **human capital**. In this study, its importance is embodied by the acknowledgement that human beings, by interacting with nature, shape territories. Human capital is defined by the OECD as *“the knowledge and skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic wellbeing”* (Keeley, 2007: 29) and may play an essential role in the process of accumulation or dissipation of all the other components of territorial capital (i.e. physical, institutional, cultural capital and so on.). Several factors may affect its characteristics and quality: education, demography, the youthful percentage of the population, health, ideals, tolerance and diversity, among others (Florida, 2002; Keeley, 2007; Todaro and Smith, 2009).

Unlike most territorial resources, human capital is quite mobile and fungible. Rodríguez-Pose and Tijmstra (2009) state that in recent decades, due to lower transportation costs and better infrastructure, both internal and international migration has increased significantly. Moreover, Keeley (2007) argues that due to the information era, the location of people and human capital has declined in importance. Yet, while individuals can move easily, the accumulation of human capital and consequently, the production of other forms of derived capital (i.e. institutional, cognitive, social, relational, cultural capital) is a slow process, which is generated locally and is difficult to reproduce.

In conceptualizing human capital, it is useful to distinguish between **cognitive/intellectual** and **creative** human capital. The former can be defined as

“knowledge and intellectual resources available to economic actors” (Dean and Kretschmer, 2007: 573) and is closely related to educational measures of human capital (Sianesi and Van Reenen, 2003; Black and Lynch, 1996). Knowledge plays an important role in regional growth, as demonstrated by the theories of ‘milieu innovators’, ‘learning regions’, and ‘regional innovation systems’ (Capello *et al.*, 2009).

An array of authors also highlights the importance of *creativity*; creative people are those able to produce new ideas that are increasingly important to regional and urban growth (Florida, 2002). Creativity could be considered an aspect of human capital; however, some authors argue that since its accumulation does not necessarily depend on the acquisition of formal education, it is perhaps a broader concept than human capital (Batabyal and Nijkamp, 2010). Piergiovanni *et al.* (2012) refer to economic, cultural or technological creativity as the act of starting a new firm, or producing an artistic event, inventing a new process/product. Therefore, the existence of creative capital is linked with the capacity and degree of regional innovation (*innovation capital*).

For the purpose of this research, another important definition linked to human capital is the concept of *tacit knowledge* (Gertler, 2003). Tacit knowledge is highly territorialized; it is localized and unique; it does not travel easily as it is acquired through experience, proximity, and shared within a common social context with shared values, language and culture (Gertler, 2003). Whilst codified knowledge can be transmitted mechanically or electronically, tacit knowledge in the form of knowhow, skills and competences is not ubiquitous (Hudson, 1999). It refers to an information system circumscribed within a locality and it is also needed for the creation of culture-based goods (Santagata, 2002). Moreover, since it is central in the process of learning through interacting, it tends to reinforce the local over the global (Gertler, 2003). Thus, it is not reproducible or fungible; it is part of territorial capital and can be incorporated in the concept of *“something in the air”* (OECD, 2001).

Besides human capital, the notion of ***social capital*** has become increasingly popular over the last thirty years, and is central to ongoing debates concerning the importance of social cultural components to the local development process (Evans and Syrett, 2007). The literature yields several definitions of social capital; the concept is

multidimensional, and incorporates different levels, units of analysis and changes over time (Malecki, 2012).

In line with the OECD,⁸ social capital refers to “*networks together with shared norms, values and understandings that facilitate co-operation within or among groups*”. According to Malecki (2012) and Westlund and Bolton (2003), it can be compared to the region’s collective personality, impossible to imitate, it is unique changing from society to society. As with other forms of capital, social capital depreciates if it is not renewed (Malecki, 2012), but unlike traditional capital, the more it is used the more it increases (Evans and Syrett, 2007).

In general, it is considered positively, despite criticism concerning some negative aspects such as the exclusion of outsiders, restriction on individual freedoms, or excess claims on group members (Portes and Landolt, 1996, cited in Westlund and Bolton, 2003). Woolcock distinguishes between *bonding*, *bridging* and *linking* social capital: the first is related to immediate relationships such as family or friendship, the second to more distant relations and associations, while the last one refers to connections with people in positions of authority (2004, cited in Malecki, 2012).

This research considers three specific dimensions of social capital that include the concepts of relational/cooperation capabilities, civic engagement and trust. Camagni, for instance, focuses on a particular component of social capital, which he defines as ***relational capital***:

the set of bilateral/multilateral linkages that local actors have developed, both inside and outside the local territory, facilitated by an atmosphere of easy interaction, trust, shared behavioural models and values (2008: 38).

Whilst this definition appears similar to that of social capital, Camagni (2008) specifically refers to the set of relations at the micro level, not to the whole society, equating relational capital to the concept of *local milieu*. To be more specific, this is considered as “*the net of cooperation capabilities and collective competencies linking economic agents*” (Camagni et al., 2011).

⁸ <http://www.oecd.org/insights/37966934.pdf> accessed on June 6th, 2014; h.11.17 am

Two other important dimensions of social capital considered in this study are **civic capital** and **trust**. The former is defined by Guiso *et al.* (2010: 7) as *“those persistent and shared beliefs that help a group overcome the free rider problem in the pursuit of socially valuable activities”*. The latter represents *“the expectation that arises within a community of regular, honest, and cooperative behaviour, based on commonly shared norms, on the part of other members of that community”* (Fukuyama, 1995: 27). Both elements are important dimensions of social capital as it has been demonstrated by different studies that communities and countries that are rich in civic capital and trust may enjoy a comparative advantage for extended periods of time (Guiso *et al.*, 2010; Tabellini, 2010).

Quantifying social capital is difficult, perhaps due to its nature: it is the most diversified form of capital and different societies have different social capital because they have different cultures (Westlund and Bolton, 2003). In fact, the concept of social capital is very much linked to **cultural capital**; yet the notion of culture can be very misleading as it refers to different meanings. It can be considered as *“capital assets accumulated by a community whose members refer to it to connote their identity”* (Santagata, 2002: 1). According to Tabellini (2010), culture reflects individual values and beliefs such as trust and respect for others. For the purpose of this research, an interesting conceptualization is given by Throsby, who identifies two different definitions of culture that may be encapsulated in territorial capital: the first is the ‘tangible cultural capital’ or *artistic capital* that will be further explained in section 2.5.2; the second definition is the ‘intangible cultural capital’ (named for simplicity, *cultural capital*), which includes *“the set of ideas practices, beliefs, traditions, and values which serve to identify and bind together a given group of people”* (1999:7), therefore including dialects, traditions, beliefs, and so on. Hence, whilst social capital emphasizes relationships, civic sense and trust, cultural capital focuses on common habits, mentality, historical backgrounds and traditions. Moreover, social capital is transmitted through cultural mechanisms such as habits, traditions, or religion (Fukuyama, 1995).

Throsby (1999) argues that cultural values may increase the economic value of tangible assets significantly, whilst intangible culture does not have an economic value

per se because it cannot be traded; yet this is not entirely true: the case of cultural capital may increase the economic value of a certain place (i.e. Lourdes). Cultural capital is unique and non-fungible, and its maintenance is crucial for long-term sustainability, due to the provision of a sense of identity (Throsby, 1999). If it is not adequately valorised, it could cause a cultural breakdown and consequently, a loss of welfare and economic output (Throsby, 1999). Therefore, the maintenance and valorisation of culture is seen as a fundamental factor of sustainability (Cochrane, 2006).

The last component very much interconnected with social and cultural capital is ***institutional capital***. Despite its importance having been neglected for many years by mainstream economic theories, it is acknowledged that institutions are very important for economic growth and development (North, 1990; Acemoglu and Robinson, 2008; Rodríguez-Pose, 2013). Institutional capital includes *formal institutions* (i.e. constitutions, laws, regulations and so on) and *informal institutions* (i.e. social conventions, interpersonal contacts, informal networks) (Rodríguez-Pose, 2013), which may be considered part of social capital. Several researchers have found that efficient institutions play an important role in economic development by generating trust, entrepreneurship and transparency, reducing transaction costs, providing collective goods, stimulating innovation, learning and economic efficiency (see Rodríguez-Pose, 2013, for a detailed discussion).

Institutional capital is also hard to measure. It is rooted in local contexts, not replicable or fungible; it is linked to the spatial-temporal context and what is considered a working institution in a certain place or historical time can be dysfunctional in another context (Rodríguez-Pose, 2013). Moreover, informal institutions vary in different environments and are very much related to culture (Tabellini, 2010). In particular, Tabellini (2010), based on an econometric study of European regions, argues that specific cultural traits can affect economic development both directly or indirectly through better functioning institutions.

The term ***productive capital*** or *economic capital* (Servillo *et al.*, 2012) refers to the set of resources embedded in the productive system: firms, incubators, industrial

districts, and other organizations directly linked with the production of goods and services. It is therefore linked to and influenced by both intangible and tangible capital.

This research aims at investigating how firms can be affected by local contexts in general, not specifically by the structure of the productive system in terms of milieu, industrial district, competition and so on; therefore, the analysis of productive capital will be limited to one dimension: the *entrepreneurship capital*, defined as the capacity for economic agents to generate new firms (Audretsch and Keilbach, 2004). This definition is included and overlaps with the definition of creativity previously discussed, given by Piergiovanni *et al.* (2012), referring to economic creativity as the act of starting new firms. However, it could be argued that entrepreneurship capital should refer not only to the ability of generating new firms, but also to that of sustaining and expanding those already existing. Moreover, entrepreneurship capital is not only a concentration of skilled and creative labour, but a reflection of different factors, legal, institutional, and social, which create a capacity for this activity (Audretsch and Keilbach, 2004).

2.5.2 Tangible components of territorial capital

The second part of Table 2.1 presents definitions and main works of reference of the tangible forms of capital considered in this study. Tangible capital includes the stock of physical assets existing within a locality. The most basic form is ***natural capital***, comprised of all modifiable natural assets not directly created by human activity, including both renewable and non-renewable *natural resources* such as water supply, or minerals (Jabareen, 2008). This type of capital could also include the topographic characteristics of a certain territory, its geographical position or climate (*natural environment*). Another subcategory of natural capital is the *cultivated natural capital* (Cochrane, 2006) that includes plantations, crops, livestock, and other elements of natural capital in which human action has been a determinant. Natural capital is usually fungible; however, characteristics of some resources such as specific crops can be unique to a certain place.

Apart from natural capital, regions' hardware is represented by ***physical capital***, including the amount of ***private and public infrastructure*** embodied in the region such

as buildings, roads, railways, waterways, airways, other transportation and communication facilities, also defined by Servillo *et al.* (2012) as *anthropic capital*. This component of territorial capital is rooted and immobile, but can be potentially reproduced in other places. In contrast, an important and unique component, classified within the category of physical capital but incorporating intangible values, is ***artistic capital*** (*tangible cultural capital*), defined as monuments, sites, or artworks and can be identified within the concept of tangible cultural heritage (Throsby, 1999).

Lastly, ***financial capital*** is the most mobile and fungible component of territorial capital, represented by *the public and private financial resources* of a certain place. Whilst the fundamental role of financial capital is sometimes neglected by economic geographers, it is to the field's detriment, especially when local governments are obliged to operate under financial constraints. The analysis of the local balance of payments could be an adequate measurement of public financial capital, composed by the current account, capital account and cash accounts (see Todaro and Smith, 2009, for a detailed composition of the balance of payments). The magnitude of the local banking system, the amount of credit and deposit and other financial instruments available at local level could be useful to quantify the local private dimension of the financial capital (Guiso *et al.*, 2009).

Table 2.1: Components and subcomponents of territorial capital; definitions and main works of reference

| | Type | Definition | Main Reference |
|---------------------------------------|---------------------|---|--|
| Human Capital | Intangible | Knowledge and skills, competencies and attributes embodied in individuals | Keeley, 2007 |
| <i>Creative Capital</i> | Intangible | The act of starting new firms, producing an artistic event, inventing a new process/product | Florida, 2002; Piergiovanni et.al., 2012 |
| <i>Intellectual/Cognitive Capital</i> | Intangible | Knowledge and intellectual resources available to economic actors | Dean & Kretschmer, 2007 |
| <i>Tacit Knowledge</i> | Intangible | Localized knowledge that is acquired only through experience, proximity and shared only within a common social context with shared values, language and culture | Hudson 1999; Gertler, 2003 |
| Social Capital | Intangible | Networks together with shared norms, values and understandings that facilitate co-operation within or among groups | OECD web site; Malecki, 2012 |
| <i>Relational Capital</i> | Intangible | The set of bilateral/multilateral linkages that local actors have developed, both inside and outside the local territory, facilitated by an atmosphere of easy interaction, trust, shared behavioural models and values | Camagni, 2008 |
| <i>Civic Capital</i> | Intangible | Persistent and shared belief that help a group overcome the free rider problem in the pursuit of socially valuable activities | Guiso et al., 2010 |
| <i>Trust</i> | Intangible | Trust is the expectation that arises within a community of regular, honest, and cooperative behaviour, based on commonly shared norms, on the part of other members of that community | Fukuyama, 1995 |
| Cultural Capital (Intangible) | Intangible | Ideas practices, beliefs, traditions, and values which serve to identify and bind together a given group of people | Throsby, 1999; Tabellini 2010 |
| Institutional Capital | Intangible | Formal' institutions (e.g constitutions, laws, regulations etc.) or 'informal' institutions (e.g. social conventions, interpersonal contacts, informal networks) | North 1990; Rodríguez-Pose, 2013 |
| Productive Capital | Intangible/Tangible | Resources embedded in firms, network, districts, organizations that are directly linked with the production of goods and services. | Servillo et.al., 2012 |
| | | | |
| Natural Capital | Tangible | Renewable and not renewable resources, Geographic characteristics, Climate etc. | Jabareen, 2008 |
| Physical Capital | Tangible | Buildings, Housing, infrastructure, transportation, communication and facilities, etc. | Servillo et.al., 2012 |
| Artistic Capital | Tangible/Intangible | Monuments, sites, artworks and landscape etc. | Thorsby, 1999 |
| Financial Capital | Financial | Public and private financial resources available at local level | Guiso et al., 2009; Todaro & Smith, 2009 |

2.6 Territorial Capital conceptualized in the coexistence of both tangible and intangible components

Having described the individual components of territorial capital considered in this study, this section stresses the idea of the coexistence of both tangible and intangible components endowed within places, emphasizing the importance of territorial capital in the endogenous development. While researchers have extensively studied the impact of human, social, relational and institutional capital, among others, upon territorial performance (Camagni *et al.*, 2011; Crescenzi *et al.*, 2013; Rodríguez-Pose, 2013), limited research has been directed towards attempting to determine how the coexistence of all these assets contribute to growth and development. For instance, Camagni and Capello (2009; 2013) perform an empirical analysis, considering 259 European regions, using an original macro-econometric model of regional growth. The analysis takes into account a limited set of dimensions of territorial capital, including entrepreneurship, creativity, and infrastructure and shows that in those regions where these factors play an important role to regional growth, the economic performance is higher (see section 2.3 for further details).

Stimson and Stough (2011), without expressly using the notion of territorial capital, adopt a model of regional development as a function of resource endowment, including a numerous set of variables such as climate, housing ownership, infrastructure, industrial structure and so on. The model is applied in Australia and in the USA to identify which factors explain the spatial variations in the level of endogenous growth performance. The authors found differences between areas in the number of significant variables and also in the direction of influence (positive/negative), showing that endogenous resources have a diverse impact across regions and countries.

The paper by Perucca (2013) investigates the relationship existing between territorial capital and economic growth of the Italian provinces between 1999 and 2008, using a set of 39 indicators including cultural heritage, district economies, population density and relational capital. The author shows that territorial assets have a significant role in explaining different growth patterns. Moreover, tangible assets seem able to improve the economic performance of Italian provinces only in conjunction with immaterial resources, such as relational and social capital.

In Hungary, Jóna (2015) studies the endowment of territorial capital at sub-regional level from 2004 to 2010, measuring its annual change. The author uses numerous proxies for human, social, institutional capital and infrastructural capital, among others, finding that territorial capital accumulation is mainly determined by economic, cultural and relational capital.

Affuso and Camagni (2010), looking at the so called 'Latin arch' which includes France, Italy and Spain, show how four dimensions of territorial capital (infrastructure and settlement structure, cognitive capital, cultural and social capital, plus different sectoral and natural specificities) explain differences in paths of growth across provinces of these countries.

Other studies such as Lo Cascio *et al.* (2013) investigate the territorial capital of the Italian provinces in the period 1999-2012, using panel data analysis, and taking into account spatial spillovers. The authors use 30 different proxies for different components of territorial capital finding, for example, that human capital and infrastructure are the most important resources to export capacity.

Fratesi and Perucca (2014, 2016) looking at NUTS3 provinces in Central and Eastern European (CEE) and EU 15 show how the presence of territorial capital influences the effectiveness of Cohesion policies. Structural funds are not often able to push GDP growth in regions where the endowment of territorial capital is low. Therefore, in this case, they should aim at incrementing territorial capital in a long run perspective.

Although this review on territorial capital is not exhaustive, all these studies show that, in those regions where indicators on territorial capital are higher, especially in terms of soft intangible assets, the overall territorial performance is higher.

2.7 The valorisation of territorial capital: the role of local actors and endogenous capabilities

The valorisation of territorial capital could be defined theoretically as the process through which actors, key players in the process of development, exercise their power and capabilities to accumulate and/or enhance and/or mobilize local resources. In particular, the term accumulation here refers to an increase in the amount of local

resources; the term enhancement refers to the improvement of their quality; and mobilization refers to their exploitation and usage for economic purposes in an optic of sustainable development. While the process of local resources enhancement (i.e. through process of investment) can always be considered positively, the effect of their mobilization and accumulation is more ambiguous. This depends on the type of resource considered, as well as the possibility of actors' opportunistic behaviours or inefficiencies that do not lead to higher benefits for the entire community as in the case of natural resources exploitation.

As explained in 2.1, although the valorisation process might be initiated at an extra local level (i.e structural EU funds), the active participation of the local actors and community is essential (Rodríguez-Pose and Tijmstra, 2009; Vázquez-Barquero, 2003). For this reason, the analysis here focuses on the description of local actors and their role.⁹ Local actors can be divided into four categories:¹⁰

The first is represented by **public institutions**, such as local governmental authorities, local agencies (chambers of commerce, hospitals, universities and so on), and local publicly owned companies. Vázquez-Barquero (2003) argues that the productive use of local potential is expedited when institutions and regulatory mechanisms function efficiently; effective institutions are primary because they can directly control the process of the valorisation of institutional capital and consequently, influence and shape infrastructural, financial, productive, human, social and cultural capital (i.e. through the public education system).

The second category is represented by **organized groups**, including local associations, or political parties who are often conditioned by the existence of social capital, in terms of trust, cooperation capabilities and civic engagement. Organized groups, for example, by lobbying public institutions can play a fundamental role in the valorisation of all the components of territorial capital.

The third category includes **firms**, which are the main focus of this study. They are extremely important, as one of the most effective ways to mobilize territorial capital

⁹ For a general classification of all actors at the local and extra local level, operating at different scales, see Pike *et al.* (2006: 37).

¹⁰ This classification has been partially taken and readapted from the Italian government' web site <http://www.urp.gov.it/Sezione.jsp?idSezione=783>

and release its potential is to establish new businesses or grow and sustain those already in existence (Pike *et al.*, 2006). The analysis performed in this study mainly focuses on Small Medium Enterprises (SMEs) due to their higher degree of embedment in the local context, also considering that the endogenous development tradition is founded on the study of SMEs (Pyke *et al.*, 2006).

The final category is represented by ***non-organized groups***; individuals with their own aspirations, behaviours and desires are fundamental to the valorisation of human capital (for example, by acquiring additional years of education) and consequently, to the whole of territorial capital.

The valorisation process is strictly dependent on the power and capabilities that local actors have to accumulate and/or enhance and/or mobilize local resources. However, several constraints can be identified in this process, such as lack of appropriate financial resources, sufficient legal power, and adequate technical and professional capacities (Syrett, 1994). Other possible pitfalls may be represented by an existing gap in policies, lack of efficiency and coordination, duplication of functions and high levels of bureaucracy (Syrett, 1994).

In this regard, the OECD (2001) definition of territorial capital highlights that to activate a process of endogenous development, the territorial endowment of high quality resources *per se* is a necessary but insufficient condition; the existence of a territorial capacity and power to mobilize and valorise those resources becomes a crucial aspect. This capacity is related to the endowment of territorial intangible resources, as explained previously. Therefore, an array of scholars has emphasized the supremacy of intangible factors residing in intangible forms of capital when compared to tangible capital, as the capital accumulation process could not take place without the existence of territorial capability that drives and conditions this process (Vázquez-Barquero 2003; Camagni 2008; Stimson *et al.*, 2009, 2011, among others). For instance, Stimson and Stough (2011) have developed a model in which endogenous development is a function of resource endowment performance (climate, topography, population, and so on), market fit which are crucially mediated by three *intervening variables*: leadership, entrepreneurship, and institutions.

Fahy (2002) distinguishes between inherited *basic resources*, such as climate, or natural resources, and *advanced resources*, or *capabilities*, produced by long-term

investment, including the education system, and technological and organizational capabilities. Advanced resources are characterized by a high level of casual ambiguity, imperfect mobility and a lack of imitability, and for this reason, they are crucial to the process of development. Camagni also argues that:

the huge theoretical heritage of endogenous development literature, industrial districts, milieu innovators, production clusters has long driven regional scholar attention towards intangible, atmosphere type, local synergy and governance factors, something that in the last decade was reinterpreted in the form of social capital, relational capital or as knowledge assets (2008: 30).

As part of intangible resources, Storper (1997) highlights the existence of *untraded interdependencies* that coordinate economic actors under conditions of uncertainty. These interdependencies constitute:

relational assets that provide localities and regions with the capability to learn and to develop unique and not easily reproducible competitive edges, necessary to stay ahead of the forces of imitation in an increasingly globalized economy (Pike et al., 2006: 99).

Therefore, capabilities such as governance, innovation, networking, entrepreneurship and other 'untraded interdependence' are essential to the processes of endogenous development, even if not all are included in the definition of territorial capital given by the OECD. Whilst the objective of this research is not to provide a detailed review of the literature on capabilities, it is important to highlight that they are interconnected and influenced by each other, increasing the level of uncertainty and complexity of the real world; for example, agglomeration, emphasized by the theories on networking, may promote innovation and the diffusion of knowledge through the networks of firms, universities and other institutions (Moulaert and Sekia, 2003).

In conclusion, cities and regions are endowed with different types of tangible and intangible resources of variable quantity and quality; although both are important in determining and shaping the territorial characteristics and potential of a certain place, immaterial elements incorporated in intangible forms of capital seem crucial to release this potential and trigger the process of endogenous development.

2.8 Territorial capital and endogenous development: limits and debates

The classification and representation of local resources in the form of different types of capital could help policy makers and researchers to have a more systematized knowledge of local contexts, their characteristics, strengths, weaknesses, opportunities, threats (SWOT), and possible areas of interventions. Nevertheless, while this concept certainly has a political appeal, the possibility of its empirical quantification by measuring the endowment of territorial resources and their interconnections remains limited.

Measuring territorial capital is undoubtedly not an easy task. On the one hand, it is hard to find good and universally recognized proxies able to quantify hybrid forms of capital; on the other, the provision of secondary data at sub-national levels is often insufficient. Furthermore, it is extremely difficult to describe and measure precisely the complexity of local contexts. Moreover, because local contexts are unique, each set of local resources might have a different impact on each place (Stimson and Stough, 2011), making generalizations of the results difficult, if not impossible.

Additionally, processes of development linked to the valorisation of local resources are not without criticism. In particular, it is argued that not all regions have the necessary preconditions for this kind of approach (i.e. lack of education, entrepreneurship skills, or social capital) and that favourable conditions are continuously challenged by globalization, changes in markets, and technologies (Tödtling, 2010). Pike *et al.* (2006) argue that releasing the unexploited local potential can be a formidable task, due to, for example, insufficient access to capital, limited local markets, or weak entrepreneurial traditions. A further criticism is related to local actors' power and capacity to control exogenous forces, as explained in the previous section.

Rodríguez-Pose and Tijmstra state that the success of endogenous development initiatives:

is conditional on national and international conditions, on the local institutional context, and on how well the development strategy applied is capable of adequately diagnosing the local economic potential and the opportunities and threats that the national and international environment offers (2009: 112).

Therefore, achieving sustainable development depends on a complex combination of factors, both internal and external to the local context (Rodríguez-Pose and Tijmstra, 2009).

It is also important to highlight that, even though jobs created following the endogenous development approach might be more sustainable (Pike *et al.*, 2006), the effects in terms of employment generation and economic growth might remain limited, due to the small size and slow growth of a multitude of SMEs that focus on endogenous resources (Tödtling, 2010). Moreover, the role played by local actors, who express a strong view towards territorial identity, might exclude minorities who do not identify with that particular identity (Shucksmith, 2000). However, while endogenous development strategies may not be a panacea for development, an increasing number of case studies show that this approach may lead to greater adaptability and sustainability in changing economic conditions (Rodríguez-Pose and Tijmstra, 2009).

2.9 Summary and conclusion

The endogenous development approach is based on the idea that factors of competitiveness should be found within territories from the co-existence of their physical, social, cultural, political and economic resources (Dicken and Malmberg, 2001). It recognizes that only an efficient combination of exogenous and endogenous factors creates the basis for regional prosperity and well-being (Tödtling, 2010).

Local resources accumulated within places, over time, produce territorial capital, a multidimensional and complex concept, elaborated by the OECD in 2001. Although this term embraces different ideas mainly coming from the field of economic geography, it can be considered innovative as, for the first time, it focuses attention on the *co-existence* of local resources that characterize the strength and the potential of each place.

Although both tangible and intangible resources are important in determining regional competitiveness, endogenous development is, above all, based on the capacity to control the process of territorial valorisation, residing in intangible forms of capital; a process driven by territorial capabilities such as innovation, institutional development, which is key to economic growth (Vázquez-Barquero, 2003). Thus,

attention is directed towards the active role played by territories, their actors, components and capabilities (Storper, 1997; Magnaghi, 2000; Garofoli, 2002; Camagni, 2008) in the development process.

Research has shown that high quality territorial capital, in particular with its soft components, is fundamental to increase competitiveness, place attractiveness, and well-being in general (Camagni, 2009; Servillo *et al.*, 2012). Its valorisation may also generate non-economic values such as environmental protection, place attachment, maintenance of cultural heritage, and the enhancement of quality of life (Vanclay, 2011), in an optic of sustainable endogenous development.

The next chapter is dedicated to the contribution that territorial capital may play in endogenous development through an analysis of the relations existing with firm performance. In fact, it is argued that territorial capital influences the efficiency and productivity of economic activities and might become a source of economic competitive advantage for territories and firms (Garofoli, 2002; Storper, 1997; Camagni, 2008; Tödtling, 2010).

Chapter 3: The importance of territorial capital on firms' performance

3.1 Introduction

The aim of this chapter is to understand and explore the role of territorial capital on firms' performance. The focus on microeconomic activities is motivated by the generalized view that competitive businesses are important to economic development and well-being (Edmiston, 2007); hence, by looking at the role played by territorial capital on their performance, it could be possible to gain further information about its relevance in the process of regional growth and endogenous development.

Firm performance can be measured in several ways. This is a relative concept as it assumes a diverse meaning to different stakeholders such as customers, investors and policy makers. In general, scholars use different types of indicators related to employment, market shares, physical output, profits, sales or a combination of them (Henrekson and Johansson, 2010). This research mainly refers to performance expressed in terms of competitiveness. In this regard, the concepts of 'productivity' and 'competitive advantage' are particularly useful to the quantitative and qualitative analysis of this study.

Productivity is defined as a measure of a firm's efficiency in converting inputs into outputs (Syverson, 2011). It is often used synonymously with competitiveness, as more productive firms are often considered the most competitive ones (Ajitabh and Momaya, 2004). With respect to the general definition of competitive advantage, firms develop a *competitive advantage* when they obtain an attribute or combination of attributes so that they can outperform other competitors (Porter, 1985).

Cellini and Soci (2002) distinguish between the *macro*, *micro*, and *meso* levels, referring to the competitiveness of countries, firms, and local systems, respectively. This chapter aims to investigate how the coexistence of territorial assets endowed at meso level affects the micro level and in particular, how territorial capital may contribute to firm productivity and become a source of competitive advantage. The

meso level here is not necessarily intended in terms of local productive systems, but assumes the geographical scope of *regions* and *provinces*, intended as a country's subnational homogenous entities.

The chapter is structured into five sections: section 3.2 introduces the concept of productivity as an indicator of firm performance and competitiveness, explaining its determinants at micro, macro and meso levels. Section 3.3 explores the concept of competitive advantage and the Resource Based View (RBV) theory from a territorial perspective. Section 3.4 explains the mechanism through which territories may influence firms, while 3.4.1 looks at how different types of tangible and intangible components of territorial capital may affect firms' productivity and become a source of competitive advantage. Finally, section 3.5 presents a summary and conclusion of this chapter.

3.2 The concept of productivity and its determinants at micro, macro and meso level

Productivity is the indicator of firm competitiveness used in the quantitative analysis of this research. The focus on firms' productivity level has been chosen for two main reasons. Firstly, although it would have been possible (and also interesting) to explore whether territorial capital affects other indicators of firms' performance such as growth, the main aim of the quantitative analysis is to test empirically the importance of territorial capital upon efficiency and productivity of economic activities as discussed by Camagni, (2008) and Camagni and Capello, (2009). In fact, productivity is a supply side measure of performance that indicates how efficient firms are in converting inputs into outputs (Syverson, 2011). It explains firms' success because more productive producers are more likely to grow faster than less efficient ones, while low productive businesses, in normal open market conditions, are more likely to exit the market (Syverson, 2011; Haltiwanger, 2011). Additionally, under the framework of endogenous development theories, productivity is the most important concept for competitiveness and it is also essential to increase living standard of people in the long term (Porter, 1990).

Secondly, whilst this analysis could have explored the importance of territorial capital upon firms' productivity growth, it adopts a static perspective. This approach has been chosen for consistency between the quantitative and qualitative analysis; in fact the latter investigates whether territorial capital is a source of competitive advantage from a static angle too. Adopting a dynamic approach might have perhaps enriched the analysis but also caused a mismatch of perspective between the two methods translating into a weaker mixed-method analysis.

Productivity can be examined as aggregate, across the whole economy, or at the industrial and firm level. In this analysis, the level of productivity is used to compare firms operating in different territories and industries. The most common formulation to measure it is the following structure of the Cobb-Douglas production function:

$$Y = TFP K^{\alpha_K} L^{\alpha_L} \quad (1)$$

Where (Y) represents the total firm's output, (K) and (L) are capital and labour inputs and (TFP) is the Total Factor Productivity. While (K) and (L) are the two most common and classic inputs, TFP may be considered an efficiency parameter which captures variation in output not explained by shifts in the observable inputs (Syverson, 2011). Thus, *Partial Factor Productivity* estimates how single factors such as labour and capital contribute to total output, while *Total Factor Productivity* (TFP) estimates the contribution of all other output determinants; for given values of (K) and (L), the magnitude of TFP proportionately affects the level of Y.

The analysis of factors able to explain variation in productivity *within* and *between companies* has attracted a great deal of research from different fields of study (Coelli *et al.*, 2015; Haltiwanger, 2011; ECB,¹¹ 2014). These factors can be broadly classified as internal or external, depending upon the possibility of being directly controlled by firms or not. While *internal factors*, in general, influence directly capital and labour, the *external factors* are mainly related to the determinants of TFP. Moreover, internal factors are related to the micro level such as the competitiveness of individual firms, while external factors are more closely related to the meso and macro levels (country and local system competitiveness).

¹¹ European Central Bank

Although this study does not intend to focus on the analysis of *internal factors* of performance, these can be broadly classified into the following categories:

1) Managerial talent: for instance, Bloom and Van Reenen (2006) demonstrated in a study that compares medium-sized manufacturing firms in four different countries (the USA, France, Germany and the UK) that managerial practices are strongly associated with productivity, profitability, sales growth and firm survival;

2) High quality of labour and capital: there is a wide body of literature that looks at the relation between productivity and the quality of labour, in terms of education, training, experience, and age, as well as technology progress embodied in capital (Syverson, 2011; Mason *et al.*, 2012);

3) Information Communication and Technology (ICT) and Research and Development (R&D): the role of R&D and ICT has also attracted considerable attention among researchers (Hall and Mairesse, 1995; O'Mahony and Vecchi, 2005, 2009). In his seminal work, Griliches (1998) addresses the relationship between R&D and productivity as one of the most important issues in today's business world;

4) Learning by doing and product innovation which may increase productivity, raising both output quantity and price, increasing firms' revenues per unit input (Jovanovic and Nyarko, 1996; Syverson, 2011).

5) Firm structure: this refers to the relations between productivity and firm structure decision, for example, in terms of organizations, level of integration, diversification, size, and so on (Leung *et al.*, 2008; Syverson, 2011).

With regard to the second group of factors affecting productivity, these are *external* to firms and relate to the *operating environment*; they include macro and meso variables. According to mainstream economists, macro variables such as interest and exchange rates, balance deficits as well as labour costs and economies of scale are the most important determinants of industrial competitiveness (Porter, 1990). Although these factors are certainly significant, Porter (1990) argues that they are not essential; for example, Japan, Germany and Italy improved their productivity despite budget deficits, appreciated currencies and high interest rates. Moreover, productivity and competitiveness do not strictly depend on cheap and

abundant labour, as countries such as Germany, Switzerland, Sweden and their firms have prospered even with high wages and labour shortages (Porter, 1990).

While macro factors refer to the macroeconomic environment, meso variables are related to the structure of the local system. The analysis of the role played by territorial capital on firm performance can be included in this category. By studying the operating environment, the quantitative analysis of this research tries to individuate those factors affecting firms' TFP.

Neoclassical and new growth theories offer different explanations as to the determinants of productivity. According to the *neoclassical approach* (Solow, 1956), capital suffers from diminishing returns and long run productivity is driven by exogenous technical progress. Hence, TFP, that in the neoclassical model represents the Solow residual, is exogenous and often related to the state of technology.

Endogenous or new growth theory, which theoretically frames the quantitative analysis of this study, explains long-run productivity in terms of endogenous mechanisms such as different production structures, competition, innovation and production spillovers (Stiroh, 2001). Endogenous theory states that capital does not suffer from diminishing returns and that TFP is driven endogenously, for example, through R&D efforts that spill over from one firm to another (Stiroh, 2001). Therefore, while neoclassical economists try to measure TFP as the rate of exogenous technical progress, new growth economists try to provide an internal explanation (Stiroh, 2001). The literature has identified several determinants that impact on TFP such as education, health, infrastructure, imports, institutions, market openness, competition and absorptive capacity, among others (see Isaksson, 2007, for a comprehensive review).

Although the importance of both internal and external variables on firm performance is still unclear, it is likely that the impact of each factor varies across industries and markets (Syverson, 2011). Therefore, in this analysis, the impact of territorial capital upon firms' TFP is studied across different geographical areas and industries.

3.3 Source of firm competitive advantage: from internal to external resources

The second concept needed to study firm performance and competitiveness, useful to the qualitative analysis of this research, is *competitive advantage*. There are two main types of competitive advantage: cost leadership, through which firms overwhelm competitors becoming the low-cost producers in the industry, and differentiation, through which firms aim at becoming unique and are rewarded for this uniqueness with a premium price (Porter, 1985).

The identification of possible sources of competitive advantage is usually a subject of strategic management researchers; however, most studies focus on the importance of firm's internal factors minimizing the role of local contexts. Briefly, recalling the Cobb-Douglas production function, the study of competitive advantage is mainly related to factors affecting the competitiveness of capital and labour, marginalizing the role of the operating environment. In this regard, the Resource Based View (RBV) is one of the most prominent theories as it affirms that competitive advantages can be obtained by exploiting a firm's internal strength and taking environmental opportunities, while neutralizing external threats and internal weakness (Barney, 1991).

While firms' internal resources such as physical, human and organizational capital are essential in developing competitive advantages (Barney, 1991), it would be interesting to determine whether and how territorial resources may constitute a source of competitiveness as well. To do this, some basic principles could be extrapolated from the RBV theory. In particular, this theory argues that firms may develop a competitive advantage when exploiting resources which are valuable, rare, not imitable and not substitutable (Barney, 1991). Resources are *valuable* when they can improve firms' efficiency and effectiveness; they are *rare* when they cannot be owned by a large number of competitors; they are *not imitable* when they are developed thanks to a unique historical condition, casual ambiguity or complex social phenomena; and they are *not substitutable* when not equivalent to any other resource (Barney 1991).

In her seminal work, Peteraf (1993: 186) reiterates Barney's principles by identifying the *cornerstone* of a competitive advantage with the realization of four conditions:

- 1) Heterogeneity: resources and capabilities are heterogeneous in limited supply; therefore, firms with superior resources are able to earn rents;
- 2) Ex post limits to competition: heterogeneity is enduring as resources are imperfect imitable and substitutable;
- 3) Imperfect mobility: resources cannot be traded;
- 4) Ex ante limits to competition: for any firms establishing a superior position, there must be limited competition for the position.

These characteristics may be valid not only for firms' internal resources, but also for industries, cities, regions and nations, and determinants of competitive advantage can be found at micro but also at macro and meso levels. For example, Porter (1990) argues that competitive advantage is created and sustained through a process which is highly localized and where "*differences in national values, culture, economic structures, institutions, and histories all contribute to competitive success*" (Porter, 1990: 90).

In this regard, Kitson *et al.* note with regards to the determinants of regional competitive advantage that:

the quality and skills of the labour force (human capital), the extent depth and orientation of social networks and institutional forms (social/institutional capital), the range and quality of cultural facilities and assets (cultural capital), the presence of an innovative and creative class (knowledge, creativity capital), and the scale and quality of public infrastructure are all just important as, and serve to support and underpin, in the form of regional externalities, an efficient productive base to the regional economy (productive capital) (2004: 994).

As explained in the previous chapter, the endogenous development approach is based on the idea that factors of competitiveness should be found within territories from the combination of their physical, social, cultural, political and economic resources (Dicken and Malmberg, 2001). Accordingly, firms may find the source of competitive advantage exploiting resources that are localized in the territory in which they are located. In particular, local regional specificities, territorial uniqueness, identity and localized tacit knowledge may play an important role in promoting firm success (Tödtling, 2010). Thus, it would be possible to argue that by comparing firms in the same industry within the same territory, internal

resources may certainly represent the main discriminant for different level of performance, while comparing firms in the same industry across different geographical areas, territorial factors can also become crucial in explaining any divergences in performance.

Additionally, the co-existence and combination of valuable territorial resources may constitute a source of 'sustainable' competitive advantage, as per Dierickx and Cool's (1987) definition. These authors state that sustainability of a competitive advantage is related to the inimitability of particular assets within the accumulation process due to the following characteristics:

- 1) Assets accumulate in the course of several generations – or *time compression diseconomies*: this could be, for example, the case of tacit knowledge and other territorial resources such as cultural capital;
- 2) Building asset stocks from scratch can be difficult as “*adding increments of an existing stock of assets is facilitated by possessing high level of that stock*” – or *asset mass efficiency* (Dierickx and Cool, 1987: 5); this is true, for example, in the case of human capital whose generation, reception and absorption is facilitated by the presence of high quality institutions (Rodríguez-Pose, 2013);
- 3) The accumulation of one stock of assets depends on the level of accumulation of other assets. This concept seems to be suited perfectly to the interconnectedness of territorial resources – or *interconnectedness of assets stocks*;
- 4) All assets decay if not maintained - *asset erosion*, such as in the case of most tangible and intangible territorial resources;
- 5) The process of accumulation is stochastic and discontinuous rather than deterministic and continuous. This *casual ambiguity* makes it difficult to identify and control relevant variables (Dierickx and Cool, 1987).

The accumulation of territorial resources in the form of territorial capital is in line with Dierickx and Cool's (1987) conditions; therefore, its exploitation may represent an important source of sustainable competitive advantage.

3.4 The role of territories upon firm performance

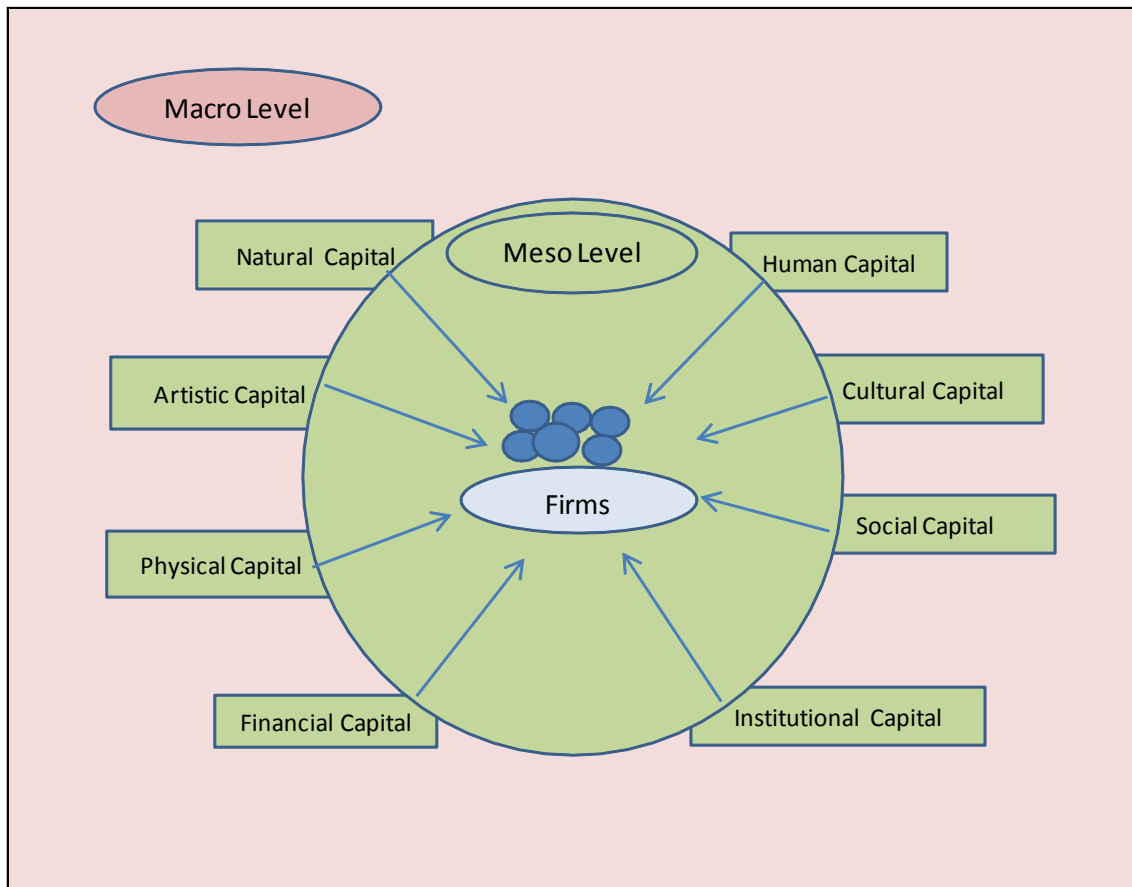
Regional economics is the subject of study that stresses the importance of *space* in economics and can be used to understand how territorial factors influence firm performance. It draws upon two groups of theories: the first is related to *location theories*, which have micro level foundations, studying location choices of economic activities in terms of transportation costs, agglomeration processes, among others; the second includes *regional growth theories*, which mainly have macro/meso economic features and refer to the local production capacity and the endowment of local resources and production factors, both in terms of quality or quantity (Capello, 2011).

To understand the role that territorial capital may play upon firm performance, it is useful to distinguish two types of possible relationships existing between firms and territories. First of all, territories may affect firms through *indirect involuntary relations*, generating positive or negative externalities, as Figure 3.1 shows. In fact, each local system, with its peculiar territorial capital, might have an indirect effect on firms, exercising its influence for the simple reason that firms are located in that particular place.

Among indirect effects and firm-territory relations, spatial spillovers are widely studied in the analysis of firm productivity. According to Capello (2009), they can be classified into three main categories: first, *knowledge spillovers* that describe a situation in which knowledge created by some firms leaks to other firms; second, vertical and horizontal *industrial spillovers* where firm dynamics (for example, technological advances, good managerial practices, and so on) generate domino effects on related industries, through input/output or competition linkages; third, *growth spillovers*, in which the dynamics of one economy (region, city or local system) influence the growth of neighbouring local economies, through trade or market relationships (Capello, 2009). However, in the theory of spillovers, space is purely conceived as a physical container where firms interact with each other, generating externalities; in this research, the *indirect territorial effects* are analyzed from a different perspective. In fact, 'territory' is not only the geographical space where firms interact, it is also conceived as an economic resource itself (Capello, 2011), as a combination of additional inputs that influence the production function.

Therefore, by analyzing the indirect firm-territory relations, this study refers to a different category of *territorial spillovers* that does not necessarily flow from one firm to another or from one region to another; it comes from the local context, with its specific resource endowment to firms, influencing their efficiency. For example, the quality of transport infrastructure existing within regions could help firms in their trading activities, or the existence of a wide spread, open-minded culture among local people could facilitate sales of innovative products and services.

Figure 3.1: Indirect effect of territorial capital on firm performance

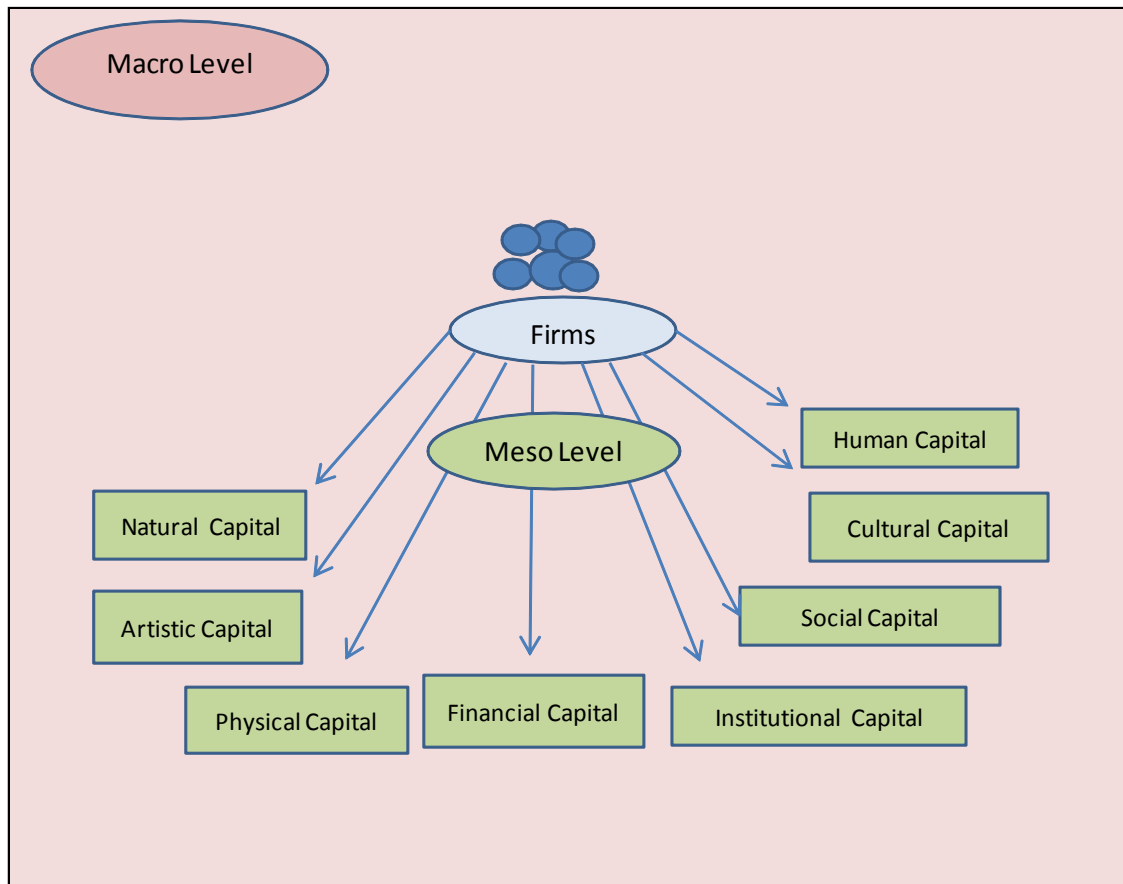


Source: Author's own

The second type of relationship existing between firms and territories is *direct voluntary* (Figure 3.2). Direct effects are based on a different mechanism and relate to a spontaneous and conscious exploitation of territorial capital by firms. Thus, in this case, firms are purposively mobilizing territorial resources, promoting their valorisation or depletion; territorial capital might acquire an economic value because it is transformed into marketable products (Camagni, 2008) and becomes a direct source of economic advantage. This, for example, is the case of firms which provide touristic services by exploiting the presence of particular artistic monuments.

Additionally, a resource may have both direct and indirect effects on firm performance. For instance, natural capital can indirectly impact business by imposing limits to the expansion of construction, but can also be exploited directly by firms which deal with extraction or exploitation of natural resources.

Figure 3.2: Direct effect of territorial capital on firm performance



Source: Author's own

In the presence of both direct and indirect firm-territory relations, the role of territorial capital might vary, not only according to a firm's location, but also in relation to the different degrees of territorialization of economic sectors. Storper states that:

an activity is fully territorialized when its economic viability is rooted in assets (including practices and relations) that are not available in many other places and cannot easily and rapidly be created or imitated in places that lack them (1997: 170).

Furthermore, some firms are *inward looking* as they source most of their inputs from within the local system (Dicken and Malmberg, 2001).

Therefore, the concept of a *territorialized economy* is not related to a mere localization of economic activities, but refers to the dependence of specific territorial resources (Storper, 1997). This contrasts with a *pure flow economy* where territorial factors of production can be found in other places (Storper, 1997). In

effect, firms in some sectors such as tourism are expected to be highly territorialized, while others, even if influenced by the external context, could potentially be located anywhere.

3.4.1 Territorial capital and firm performance

While section 2.5 in Chapter 2 has provided a review of the main tangible and intangible components of territorial capital and their role in economic growth and development, this section aims at explaining how different types of assets and their combinations may facilitate firm performance by increasing productivity and generating competitive advantages. The role of each resource in increasing business efficiency, as well as the difficulty of being substituted, imitated or found in other places is summarized in Table 3.1 which shows whether territorial resources can be considered valuable, rare, not imitable and non-substitutable.

Table 3.1: Components of territorial capital as a source of firm competitiveness

| Intangible type of Capital | Valuable (improve firms' efficiency and effectiveness) | | Rare (cannot be owned by firms in other territories) | Not Imitable | Non-substitutable |
|---|---|--|---|------------------------|--|
| | POSITIVE | NEGATIVE | | | |
| Human Capital (Intellectual and Creative Capital) | Competences, skills and creativity are central to firms' success | - | In general LOW | In general MEDIUM | In general LOW |
| Social Capital (Relational, Civic Capital, Trust) | It facilitates exchanges and lead to more efficient outcomes | e.g.: 'Bonding' social capital creates conformity, closeness | In general HIGH | In general HIGH | HIGH |
| Cultural Capital | Increase the value of tangible capital; It may enable entrepreneurship | It may Inhibit entrepreneurship | In general HIGH | In general HIGH | HIGH |
| Institutional Capital | It facilitates the business environment | Bureaucracy | In general MEDIUM | In general MEDIUM | HIGH |
| Productive Capital | e.g.: Competition, milieux | e.g.: Pollution | In general MEDIUM | In general MEDIUM | MEDIUM |
| Tangible type of Capital | | | | | |
| Natural Capital | Natural ecosystems can be seen as production factors | e.g.: Topographic characteristics may have a negative influence on firm's performances | AMBIGUOUS (It depends: e.g. oil vs. Amazon Forest) | HIGH | AMBIGUOUS (It depends: e.g oil vs Amazon Forest) |
| Physical Capital | It reduces transport costs and facilitate interexchange | e.g.: Congestion, pollution | In general LOW | In general LOW | LOW |
| Artistic Capital | For some industries: e.g. Tourism | For some industries; e.g.: construction | In general HIGH | In general MEDIUM/HIGH | MEDIUM |
| Financial Capital | It enables investments and a more efficient allocation of resources | e.g.: Speculation | LOW | LOW | LOW |

Among intangible resources, the availability of qualified **human capital**, in terms of **intellectual/cognitive** and **creative capital**, is central to the successful development of firms (Mitusch and Schimke, 2011; Florida, 2002). The former is closely related to educational measures of human capital, and its positive impact on firm productivity is supported by a rich literature (Black and Lynch, 1996; Syverson, 2011; Backman, 2014). Creative capital is related to the production of new ideas that are also important to firms' success, as stressed by Florida (2002), and demonstrated by the large stream of literature which focuses, for instance, on innovation and productivity (Griliches, 1998; Belderbos *et.al.*, 2004).

Human capital is considered to play a major role in long-term economic performance and in the creation of sustainable competitive advantage (Sianesi and Van Reenen, 2003; Dean and Kretschmer, 2007; Backman, 2014). In fact, firms located in territories where the quality of human capital is high are more likely to attract talented and creative managers, and educated, experienced employees boosting their performance, as demonstrated by Backman (2014), in her empirical work on Swedish firms. Therefore, the capability of the local context to generate cognitive and creative capital facilitates firms in the process of recruiting skilled labour, supporting productivity and becoming a possible source of cost/differentiation advantages.

As described in the previous chapter, it is argued that due to the information era, location of people is no longer important (Keeley, 2007). Human capital, in general, is not rare and can potentially be substituted as individuals can move easily; however, its accumulation and consequently, the production of other forms of derived capital (institutional, social, relational and so on) is a slow process that generates locally and whose mechanism is difficult to reproduce.

Another important element related to human capital is the use of *tacit knowledge* in the business process, which is considered as a firms' unique asset and capability and a prime determinant of innovation activity (Gertler, 2003). In their theoretical paper on industrial competitiveness, Maskell and Malmberg (1999a) argue that in an era where codified knowledge travels easily, tacit knowledge becomes an important source of competitive advantage; it can be developed within single firms but it is also linked to

economic traditions and vocations of the area which are created and maintained over several generations, and it is not ubiquitous.

With respect to **social capital**, it is argued that it is essential for firms' functioning (Malecki, 2012). For instance, in their empirical analysis based on Data Envelopment Analysis (DEA), Nerozzi *et al.* (2014) show that social capital endowed across Italian provinces is strongly associated with firms' productivity. Cooke *et al.* (2005), in their empirical study based on SMEs in UK regions, also find that innovative firms are highly involved in high trust relationships, strong collaboration and information exchange. In fact, both firms and workers are embedded in informal social relations and networks that are based on interpersonal trust (Ascani *et al.*, 2012). By collaborating with others, firms can overcome barriers caused by small size and improve their relations with suppliers (Westlund and Bolton, 2003; Cooke *et al.*, 2005). Moreover, the importance of trust, relations and cooperation has also been highlighted in several studies, where interactions among economic actors who believe and cooperate with each other are more likely to bring efficient outcomes (Belderbos *et al.*, 2004; Tabellini, 2010).

Social capital, including its relational dimension, civic sense and trust, is valuable, rare, not imitable and not substitutable. Nevertheless, while it is generally considered positively, authors such as Portes highlight its duality as it might enable or disable entrepreneurial activities (Portes 1998; Westlund and Bolton, 2003). Criticisms concern some negative aspects related, for example, to the exclusion of outsiders, restriction on individual freedoms, or excess claims on group members (Portes and Landolt 1996; Westlund and Bolton, 2003) which may hamper firms' performance. For instance, Nerozzi *et al.* (2014) demonstrate that 'bonding' social capital, indicating strong relations with family and friends, has a negative impact on firm productivity.

The same consideration can be made for **cultural capital**, defined in Chapter 2 as the set of ideas, practices, belief, traditions and values which identify a group of people (Throsby, 1999). This is a resource that is valuable, rare, not imitable and not substitutable. From the one side, it may raise the economic value of tangible capital (Throsby, 1999), increase place attractiveness, and promote entrepreneurship and well-being (Ray, 1998 in Cochrane, 2006); for example, the existence of a rich cultural patrimony, including history and traditional celebrations, may be a strong source of attraction in the tourist sector. On the other side, culture may represent an internal

friction to openness, innovation and change (Shane, 1993). In this regard, an important aspect refers to the existence of the spread of *entrepreneurial culture*, which is considered one of the main drivers of regional economic success (Beugelsdijk, 2007). In fact, it is argued that the presence of risk taking, competitive and proactive firms also has cultural foundations (Lee and Peterson, 2001).

Lastly, with respect to *institutional capital*, researchers have found that efficient institutions are important to firms' productivity because they promote trust, entrepreneurship and transparency; they reduce transaction costs and stimulate innovation and the efficient use of resources (Lasagni *et al.*, 2015; Rodríguez-Pose, 2013). Both informal norms and social networks, and formal institutions such as polity, judicial system, labour market, bureaucracy, existing rights, among others, influence economic activities (Frances, 2004). For instance, by ruling employment conditions, institutions may affect the cost of labour and thereby influence investment in firm human capital (Frances, 2004). The institutional setting is generally common within countries; however, as discussed in Tabellini (2010), the way the rule of law is implemented at sub-national level is often different. Therefore, there is cross regional variation, which is important for the identification of the effect of institutions in the empirical analysis.

TANGIBLE RESOURCES AND FIRM PERFORMANCE

Among tangible forms of territorial capital, *natural capital*, comprising the endowment of renewable and non-renewable resources, is valuable for firms and can become a source of competitive advantage both in terms of cost and differentiation. In fact, it is argued that natural ecosystems are essential to support the real economy and can be seen as production factors themselves (Throsby, 1999; Isaksson, 2007). Because natural capital cannot be created by humans, it is non imitable; however, it is not possible to determine whether it is rare or non substitutable as some components can be found in different places with the same characteristics (for example, water and oil), while others are peculiar and unique and therefore non fungible (for example, the Amazon forest). Moreover, the endowment of natural capital is not a sufficient condition for productivity; it is common to observe territories that lack endogenous capacity to exploit and valorise their natural resources being reduced to a mere source

of attraction for foreign multinationals (for example, mineral resources). Although this analysis is based in Italy, considered a country with limited natural resource endowment (Porter, 1990), some Italian firms might certainly develop a competitive advantage by exploiting particular elements or characteristics of their natural capital endowment, for example, coastal and marine resources. Moreover, if these particular elements reside in the topographic characteristics of a certain territory, its geographical position and climate, it is possible that these might positively or negatively influence the trend of some economic sectors such as agriculture, tourism, transportation and so on.

Physical capital includes built environment, transportation and communication facilities, and represents an important component of the economic infrastructure (Todaro and Smith, 2009); **infrastructures** are crucial to facilitate firms' output growth and productivity (Isaksson, 2007), for example, through lowering transportation costs and facilitating interchanges. At the same time, at the meso level, uncontrolled overbuilding might be a source of congestion, depletion of natural resources, inefficiencies and decreasing quality of life. Infrastructures, although rooted and immobile, are not rare or not substitutable and can potentially be imitated in several places.

As explained in the previous chapter, **artistic capital** is defined as the set of monuments, sites, artworks, landscapes and represents an important source of attraction of people and business (Detotto *et al.*, 2014). This form of capital appears to be very important for a country such as Italy that, for example, has the greatest number of UNESCO World Heritage Sites in the world.¹² Certainly, artistic capital is expected to be a valuable resource and positively affect productivity in specific sectors such as the touristic one. It is rare and difficult to imitate but it could be substituted by other types of artistic capital (for example, the Coliseum versus the Eiffel Tower). It is argued that firms exploiting the unique and non fungible territorial 'cultural heritage' may develop a competitive advantage, ensuring long-term sustainability (Throsby, 1999). Moreover, the identification and valorisation of local assets such as

¹² <http://www.unesco.it/cni/index.php/siti-italiani> Accessed on April 2nd, 2014; h: 1.54 pm

monuments, landscapes and so on might also increase the sense of community, local pride, social capital and quality of life in general (Vanclay, 2011).

Lastly, the endowment of local **financial capital** might also affect firms through access to the banking system and public funding. In fact, a working financial system enables investment and a more efficient allocation of resources (Isaksson, 2007). In their study based in Italy, Guiso *et al.* (2009) also demonstrate that local financial development favours entry of new firms, increases competition, and promotes growth. Additionally, local governments in good financial condition can easily promote the business environment and facilitate the development process. Thus, financial capital although highly fungible and unless linked with speculation phenomena, is a valuable territorial resource which supports firm performance.

Table 3.1 summarizes the potentiality of each type of territorial capital in becoming a source of firms' competitiveness. All territorial resources are valuable to firm performance, although in some cases their accumulation can also have negative outcomes. Most resources, in particular intangible ones, are rare, not imitable or substitutable.

COEXISTING TANGIBLE AND INTANGIBLE RESOURCES AND FIRM PERFORMANCE

As explained in 1.5, this study stresses the idea that the analysis of single factors is not sufficient to explain the firm-territory relationships fully and that each local resource should be analyzed in relation to the presence of other territorial components. In fact, to date, only limited research has empirically investigated the impact of territorial capital, conceptualized as combination of local resources, on firm performance.

For example, the paper by Marrocu *et al.* (2012), without using the notion of territorial capital, simultaneously analyzes the impact of technological capital, public infrastructure, and human and social capital on firms' productivity in the manufacturing sector. The econometric analysis is conducted by comparing companies in 116 regions of 6 European countries over the period 2002-2006. The authors provide evidence of the importance of both internal and external intangible inputs along with the traditional factors with a certain degree of variability across countries and subsectors considered. Aiello *et al.* (2014) analyze how regional factors affect the

TFP of Italian manufacturing firms, using a multilevel model approach over the period 2004-2006. They find that the regional endowment of infrastructure, the efficiency of local administration and the investments in R&D positively affect firms' performance.

By using multilevel method, Fazio and Piacentino (2010) analyze spatial differences in the firm level productivity of SMEs, across the Italian provinces. They show that worse territorial socio-economic conditions, measured as combination of different factors such as crime, mortality rate, gender employment, among others, lower firm productivity. Moreover, this impact seems higher for high labour intensive companies compared to the high capital intensity ones.

In terms of qualitative analysis, Barzotto *et al.* (2016) explore whether manufacturing multinational corporations gain benefits from territorial capital in the north-east of Italy. The authors show that workforce skills, local education system and network of suppliers available in the area are important to firm competitiveness, while the financial system does not emerge as a key territorial asset.

These studies, despite using a restricted set of components of territorial capital and mainly focusing on the manufacturing sector, show that the co-existence of different tangible and intangible factors has a positive impact upon firm performance. The innovativeness of this work is to consider a much wider variety of both tangible and intangible resources estimating their effect on firms' performance, across different industrial sectors and areas of Italy.

Although the presence of both tangible and intangible resources may potentially become a source of competitive advantage, Maskell and Malmberg (1999b), in their theoretical paper on competitiveness of firms and regions, highlight the importance of *localized capabilities*. These are linked to regional infrastructures, institutional endowment, and knowledge and skills available in a region as also demonstrated by the aforementioned empirical papers. Localized capabilities are developed through a long period of time; they are interconnected to each other and are difficult to imitate; hence, firms able to identify and exploit localized capabilities are more likely to obtain durable competitive advantages (Maskell and Malmberg, 1999b).

3.5 Summary and conclusion

It is argued that regional specificities and territorial uniqueness play an important role in promoting firms' success and their competition in the global markets (Isaksen, 2001; Tödtling, 2010). In this research, the influence of territorial capital upon firm performance is mainly studied using the concepts of productivity and competitive advantage.

Firms' productivity is an indicator of performance, whose determinants can be found at micro, macro and meso levels. The micro level relates to the competitiveness of individual firms and includes different factors such as managerial talent, R&D, learning by doing and so on which directly affect capital and labour productivity. The meso and macro levels relate to the operating environment, the competitiveness of local economic systems and nations and include different factors which may influence capital, labour and total factor productivity, capturing variation in output not explained by shifts in traditional inputs (Syverson, 2011). Territorial capital is included in the meso level factors and interrelates with micro level factors; for example, the availability of high quality human capital and entrepreneurial culture at a local level might affect the likelihood of firms to attract high quality human resources and talented managers.

The second concept used to study performance and competitiveness is *competitive advantage*, usually a subject of strategic management researchers. However, it can be argued that different components of territorial capital may also become a source for competitive advantage, when conceptualized as valuable, rare, not imitable and non substitutable resources, according to the theoretical framework of the RBV (Barney, 1991).

Although a firm's internal characteristics are crucial to the success the firm, external conditions such as regional characteristics are also important (Hoogstra and Van Dijk, 2004) as space influences the way in which economic systems work, becoming a source of economic advantage and/or disadvantage (Garofoli, 2002; Capello, 2011). Hence, the endowment of territorial capital existing at the meso level may influence firm performance at the micro level. The power of the theory of territorial capital is based on the idea that firm performance is not only influenced by the existence of individual resources, but by the mix of all valuable resources available

in each place. Thus, while single assets may certainly support business, the co-existence of different valuable assets represents the real source of competitive advantage for firms. In particular, there is an increasing interest in the role played by intangibles on firms as performances and competitiveness depend more and more on soft intangible resources and their development (Capello *et al.*, 2009).

Chapter 4: Overall research design and methodology

4.1 Introduction

The aim of this chapter is to present a general overview of the methodological approach used to carry out this research, which is based on the analysis of quantitative and qualitative data, following a mixed-method nested strategy (Creswell, 2003). This chapter describes the main steps of the quantitative and qualitative analysis and their combination, leaving the discussion of more technical methodological details to Chapters 5 and 6.

As explained in the first chapter, the overall aim of this study is to investigate *whether* and *how* the coexistence of different local resources, conceptualized in form of territorial capital, affect firms' performances in diverse economic sectors and across different geographical areas, contributing to endogenous development. Hence, the main research question is:

Does territorial capital contribute to firm performance and how?

The methodological framework is then specifically set up to answer a set of sub-questions:

Rq1) What territorial resources drive performance of Italian firms?

Rq2) How do territorial resources influence firms' performance?

Rq3) What territorial resources drive firms' performance across different geographical areas and economic sectors?

The combination of quantitative and qualitative approaches can provide a better understanding of this research problem as it takes into account different perspectives of the same issue and adds different levels of information. Whilst *Rq1* involves the use of quantitative techniques, based on econometric estimations, *Rq2* adopts a qualitative approach, based on semi-structured interviews with firms, whereas *Rq3* benefits from both techniques. Results from the two methods are then integrated and combined using triangulation strategies, seeking convergence and complementarities to clarify and expand the results of one method with the other (Greene *et al.*, 1989; Johnson and Onwuegbuzie, 2004).

This chapter is organized into five main sections: 4.2 explains the research philosophy, while 4.3 introduces the overall structure of the research design adopted. Sub-section 4.3.1 explains the quantitative analysis, the model, datasets and econometric techniques adopted; 4.3.2 presents the qualitative analysis, explaining the sampling technique and data collection method, whilst 4.3.3 highlights how triangulation overcomes the limits of the two methods. Section 4.4 discusses research ethics. Lastly, 4.5 presents a summary and conclusion of the chapter.

4.2 Research Philosophy

Ideas, assumptions and beliefs associated with the worldview are broadly known as epistemology and are critical to the nature of research (Ryan, 2006). In this respect, this study is placed in the pragmatist camp. According to pragmatism, the most important determinant of the research philosophy adopted is determined by the research questions (Saunders *et al.*, 2007). Knowledge claims arise out of actions, situations and consequences rather than antecedent conditions (Creswell, 2003) and both objective and subjective approaches can be appropriate to answer particular research questions (Saunders *et al.*, 2007).

While positivists want to examine causes that influence outcomes, interpretivists rely, as much as possible, on the participants' view of the situation being studied (Creswell, 2003). In this study, the first research question aims at investigating the cause and effect relations existing between territorial resources and firms' productivity (positivistic approach), while the second question mainly deals with the interpretation of those mechanisms through which such relations are established and developed (interpretivistic approach). Moreover, although the third question reflects a strong tendency towards positivism, it does not necessarily involve causation in particular sectors and geographic contexts, giving way to a broader approach to knowledge. For this reason, neither the straightforward logic of positivism, strictly quantitative (Halfpenny, 2001), nor the enthusiastic embrace of interpretivism, purely qualitative (Guba and Lincoln, 2005), would provide the necessary justificatory power of this research design.

Hence, instead of compartmentalizing the research in the qualitative (Guba and Lincoln, 2005;) or quantitative traditions (Halfpenny, 2001), pragmatists advocate the use of mixed methods, not on the grounds of their feasibility, but in search of greater accuracy and reliability (Johnson *et al.*, 2007). According to Creswell and Plano Clark (2007), the combination of quantitative and qualitative approaches can provide a better understanding of particular research problems; moreover, as suggested by Taylor and Plummer (2011), using multi methods for analysis of local development helps to critically understand and explain reality.

4.3 Strategies of inquiry: Quantitative and Qualitative Research Methods

The methodology of this research is based on the analysis of quantitative and qualitative data, following a mixed-method nested strategy (Creswell, 2003). Sections below provide a general overview of the quantitative and qualitative methods used, and their combination, leaving the explanation of more technical methodological details to Chapters 5 and 6.

4.3.1 Quantitative Analysis

The quantitative analysis aims at understanding whether the endowment of territorial capital at regional level affects firms' performance by studying: 1) what territorial resources drive performance of Italian firms (*Rq1*); and 2) what territorial resources drive firm performance across different geographical areas and economic sectors (*Rq3*).

The analysis is based on testing three main hypotheses. The first hypothesis (*H1: All else being equal, firms' productivity performance is positively related to the total endowment of territorial capital. This highlights the importance of the co-existence of both tangible and intangible territorial assets*) seeks to understand whether territorial capital affects firms TFP. This is investigated using different dimensions of tangible and intangible components of territorial capital covering a wide range of regional characteristics that are expected to be important in determining companies' productivity.

The second hypothesis (*H2: All else being equal, the impact of territorial capital in the Northern regions is stronger compared to the rest of the country*) is based on the idea that the more industrialized North of Italy owns higher levels of complementary assets such as human, social, institutional capital and infrastructure, among others and this can play a more important role in driving TFP in those regions.

The third hypothesis (*H3: All else being equal, there is a significant difference in the way territorial capital affects productivity performance in firms operating within specific industries*) allows drawing conclusions on which forms of territorial capital are more important to promote the development of specific industries. In fact, while it is reasonable to assume that financial capital is likely to have a positive effect across the whole industry spectrum, the impact of other types of territorial capital, such as natural and artistic capital, is likely to be stronger in industries that used these assets more intensively, such as the accommodation and food sectors. These hypotheses will be discussed further in the next chapter.

THE ECONOMETRIC MODEL

The initial step of this analysis consists of estimating a Cobb-Douglas production function at firm level. This type of function is very popular in the empirical analysis of productivity as it is the only linearly homogeneous function with a constant elasticity of substitution, in which the share of income of each factor is constant over time (Kaldor, 1961).

As introduced in 3.2, the general structure of the Cobb-Douglas function is:

$$Y = TFP K^{\alpha_k} L^{\alpha_l} \quad (1)$$

Where K is physical capital, L is labour and TFP is a constant. For given values of K and L , the magnitude of TFP will proportionately affect the level of Y .

The Cobb-Douglas function presents specific properties: first of all, it is homogeneous of degree $(\alpha_k + \alpha_l)$; thus, by increasing capital and labour j times, Y will increase $j^{\alpha_k + \alpha_l}$. Under the assumption of constant returns to scale $(\alpha_k + \alpha_l) = 1$ increasing all inputs j -fold, output will rise j -fold. In other terms, a proportional

increase in all input levels will lead to output growth in the same proportion.¹³ On the other hand, if $(\alpha_k + \alpha_l) > 1$, a proportional increase in all input levels will lead to output growth in a higher proportion (increasing returns to scale), while if $(\alpha_k + \alpha_l) < 1$, the output growth will be in a lower proportion (decreasing returns to scale).

The simplicity of the Cobb-Douglas production function is also one of its drawbacks and some authors have started to specifically test for the validity of this specification against more general ones. For example, Duffy and Papageorgiou (2000) propose, as an alternative, the Constant Elasticity of Substitution (CES) production function, both using the original CES formulation and a linearised version. However, the results from the estimation of a CES production function are more complex to interpret. Therefore, given the large number of applications of the Cobb-Douglas function, and the fact that it is possible to undertake meaningful cross-study comparisons, most researchers have not questioned its use (Duffy and Papageorgiou, 2000).

After the direct estimation of the Cobb-Douglas function at firm level, which provides the values of input elasticities, following Harris and Moffat (2011), *TFP* is measured as the level of output which is not attributable to firms' inputs (capital and labour), but only to efficiency levels.

tfp expressed in natural logarithms is estimated using pooled Ordinary Least Square (OLS), fixed effect and Levinsohn and Petrin (2003) techniques; this, as better explained in the next chapter, addresses issues of endogeneity of factor inputs, which are endemic in production function estimation.¹⁴ After having derived *tfp*, this is considered a function of different dimensions of territorial capital.

¹³ In this case, the previous equation can be expressed as:

$$Y = TFPK^{\alpha}L^{1-\alpha}$$

Linearly homogenous function enjoys specific properties that are useful in the description of production in perfectly competitive markets. In this case, the average labour productivity (APP_L), average capital productivity (APP_K) the marginal product of labour (MPP_L) and (MPP_K) capital can be expressed as a function of the capital-labour ratio alone.

¹⁴ The main cause of endogeneity in production function estimation arises from the fact that the error term contains unmeasured components that are unknown to the econometrician but known to the firm, and are therefore transmitted to the firm's choice regarding factor inputs (Griliches and Mairesse 1995; Eberhart and Helmers, 2010). This results in upward biased coefficients, particularly for those inputs that can be more easily adjusted following a productivity shock. Next to this 'transmission bias', measurement errors in

$$tfp_{ijt} = \beta_0 + \sum_{z=1}^N \beta_z TC_{jt} + controls + u_{ijt} \quad (3)$$

where i denotes firm, j denotes regions and t denotes time. TC represents the natural logarithm of different territorial capital dimensions derived from the *Territorial Capital Database* (presented later in this section) and represented by single or combinations of proxies, presented in Table 4.1.

Equation (3) is also augmented with a set of control variables, as better explained in Chapter 5, and represents the general benchmark specification; it is estimated for the overall sample and by dividing companies into different geographical areas (North and Centre-South) and industrial sectors.

The analysis is based on panel data econometric analysis. This approach pools time series data with cross-sectional data and it allows investigation of the behaviour of firms over a specific time period, in different sectors and regions. The panel data used in this study are *unbalanced* and *short*, and means that the same number of observations is not always available for each firm, and the number of firms is greater than the number of time periods. By combining the firms and territorial database, the panel covers the period 2004-2012.

The possibility to use Panel Data provides numerous benefits and enriches the empirical analysis in ways that would not be possible by using cross section or time series data exclusively (Gujarati and Porter, 1999). First of all, with specific reference to this study, panel data models can take into account a greater degree of the heterogeneity that characterizes firms over time; the number of data points available provides greater variation of independent variables for a given year, reducing multicollinearity and improving the precision and efficiency of the econometric estimates (Gujarati and Porter, 1999). Furthermore, the use of longitudinal data allows the researcher to answer a number of important economic questions not readily and precisely answerable by cross-section or a time-series alone, providing solutions to important econometric problems (Gujarati and Porter, 1999). For example, a common refrain amongst economists when testing theory is that their ‘bad’ results are explained by either omitted or unobserved variables. When panel data are available

the input variables lead to an 'attenuation bias' which produces a downward bias of the estimated elasticities.

on individuals over time, this may provide a solution to the problem of unobservable variables.

The analysis uses two different datasets: the *Firms Database* which contains information on Italian firms coming from individual balance statements, and the *Territorial Capital Database* which attempts to quantify, through the collection of secondary data, the endowment of tangible and intangible territorial resources across Italian regions.

THE 'FIRMS DATABASE'

The *Firms Database* includes data on Italian firms downloaded from AIDA Bureau Van Dijk dataset which contains comprehensive information on Italian commercial companies collected and re-elaborated from their official financial statements, in line with the IV CEE Directive. The database considers detailed information at company level such as data on value added, number of employees, firms' tangible and intangible assets, as well as the firm name, location and economic sectors. The sample includes 91,652 firms across 20 Italian regions, operating in 12 different economic sectors, including manufacturing, services and ICT. Available data cover a period from 2004 to 2013.

Regarding the selection of firms, this research mainly focuses on small-medium enterprises.¹⁵ Micro enterprises with fewer than 10 employees (as per 2008) have been excluded for different reasons. Firstly, they usually provide poor quality information; in this regard, Bureau Van Dijk databases are subject to a number of well-known drawbacks as not all firms provide information on variables such as employment (typically a non-mandatory item in balance sheets) needed to analyse issues such as productivity (ECB, 2014). In particular, the ECB (2014) report states that firms not reporting data are typically the smallest ones.

Another reason for excluding micro enterprises from the analysis is that, in general, they are considered to have low orientation and potential to grow and generate new employment (Birch, 1979). More concretely, a study conducted by the ECB (2014) across European countries showed that productive firms are systematically

¹⁵ Only 2.2% of sampled firms are large.

larger than low productivity firms. Thus, considering that the importance of territorial capital lays its foundation within the endogenous development theory, this analysis focuses on the most productive firms.

THE 'TERRITORIAL CAPITAL DATABASE'

In social science, it is common to measure processes by using *indicators* as indirect measures of phenomena which are not directly measurable (Maggino, 2009). The *Territorial Capital Database* is built with the aim of quantifying the endowment of territorial capital across different regions in Italy. The importance of this quantification attempt has been also emphasized by Camagni and Capello (2013) and suggested as an objective for future research.

In carrying out this study, it is important to understand how regions differ from each other in terms of diverse endowment of tangible and intangible assets. This database collects secondary data from different public datasets available at ISTAT (Istituto Nazionale di Statistica), Ministero dello Sviluppo Economico, Banca d'Italia, and Eurostat among others. Selected variables (also called single indicators) are used as proxies of different types and dimensions of territorial capital, in accordance with a critical analysis of the previous theoretical and empirical works.

With regard to the geographical scope, this exercise is carried out considering 'regions' as the main unit; while territorial capital can also be investigated at the provincial level (Perucca, 2013; Camagni *et al.*, 2011), the choice of the regional level has the advantage of providing a wider range of indicators over a longer time period. Moreover, Italian regions present a good degree of administrative and economic control (Marrocu *et al.*, 2012) as well as homogeneity from an historical, cultural and socio economic perspective. Data collected on territorial variables cover a period from 2001 to 2012.

Table 4.1 presents a list of the variables used in this analysis, the dimension of territorial capital they proxy, references to studies that have included similar territorial components and data sources. More information about these indicators in terms of summary statistics and inclusion into the benchmark model will be provided in Chapter 5.

Table 4.1: Dimensions, sub-dimensions and proxies of territorial capital

| | Dimension | Subdimension | Proxy | Authors that used similar proxies | Data Source |
|--------------------|-----------------------|-------------------------------------|--|--|------------------------------------|
| Intangible Capital | Human Capital | Cognitivity/Intellectual knowledge | First and second stage of tertiary education (levels 5 and 6)(%) | | Eurostat |
| | | Cognitivity/skills | Households using internet (%) | | Istat |
| | | Cognitivity/technological knowledge | Graduates in science and technology subjects (per 100 people) | Camagni et al., 2011; Brasili et al., 2012 | Istat/Miur |
| | | Cognitivity/Research skills | People employed in R&D (%) | | Istat |
| | | Innovation Creativity | Patents Registered at the European Patent Office (EPO) per 100 of people | Piergiovanni et al., 2012; Camagni et al., 2011 (Used as Proxy of Cognitivity) | European Patent Office/Istat |
| | | Economic Creativity | New Companies/Resident Population (per 10.000 people) | From the definition of Piergiovanni et al., 2012 | Istat/Eurostat |
| | | Artistic Creativity | Diffusion of Theatre and Music Performances (tickets sold/population*100) | From the definition of Piergiovanni et al., 2012 | Istat/SIAE |
| | Social Capital | Civic Sense | Free-of-charge activity for volunteer groups or associations(%) | Crescenzi et al., 2013 | |
| | | Trust | Money given to associations (% of people >14 years that have donated) | Brasili et al., 2012 | Istat/CoesioneSociale.it |
| | | Relations | % People Carrying out Social Activity (Meetings of cultural, recreational or associations of other type) | Capello et al., 2009 (used as proxy of collective action capability) | Istat/CoesioneSociale.it |
| Tangible Capital | Cultural Capital | Beliefs | Religious People (%) | Alesina and Giuliano, 2015 | Istat |
| | Institutional Capital | Formal Institutions (Rule of law) | Violent Crimes (n.of violent crimes per 10.000 people) | Lasagni et al., 2015 (Crime Index is one component of the Institutional Quality Index) | Istat, Ministero dell'Interno |
| | Artistic Capital | Monuments/Museums | Visitors public institutes of antiquities and art | | Istat /Dipartimento beni culturali |
| | Natural Capital | Natural Environment | Important natural sites (%) | | Istat/Ispra |
| | Physical Capital | Infrastructure | Railway Length(Km)/Terrestrial area (Km2) (%) | Perucca, 2013 | Istat |
| | Financial Capital | Private Finance | Bank Credit As % of GDP | Moretti, 2014 | Banca d'Italia/Istat |

The first version of the territorial database included missing information for few variables in some years. For each variable, I inputted missing values in the temporal dimension; more specifically if the missing value was in the middle of the series, I used the average between the previous and consecutive value; if the missing value was at the beginning or at the end of the series I performed forward and backward extrapolations, based on the average growth rate of series observed during the period. Missing information include: Patents Registered (2010-2011-2012), Graduates in science and technological subject (2011. 2012), Free-of-charge activity for volunteer groups or associations (2003), Money given to associations (2004-2010-2011-2012), % of people carrying out social activities (2004), Violent Crimes (2011- 2012), Religious people (2004-2010-2011-2012),Railway Length (Km)/Terrestrial area (Km2) (2003-2004), Bank as credit as % of GDP (2010-2011-2012)

4.3.2 Qualitative Analysis

The qualitative approach consists of 26 semi-structured interviews with owners/managers from a purposively selected sample of firms, located in two different Italian provinces in the North and South of Italy. The qualitative analysis is particularly useful because it enables explanation of the way in which territorial capital can become a source of competitive advantage in two different local areas and sectors, from an owner-manager perspective.

PURPOSIVE SAMPLING TECHNIQUE

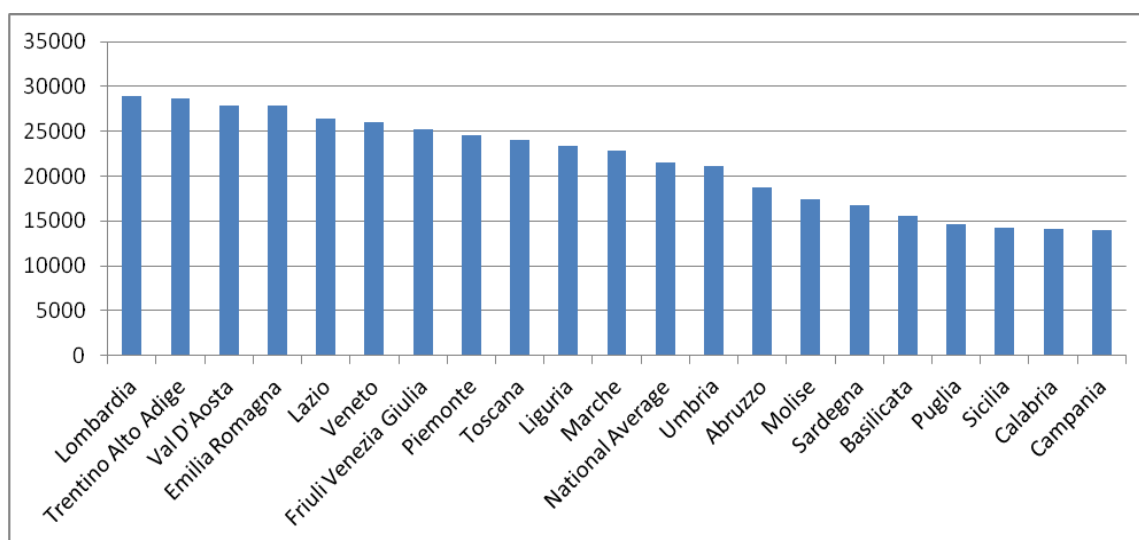
Purposive sampling has been carried out according to four different criteria. The first criterion is firm size; firms have been selected within the category of small and medium enterprises (SMEs), with a number of employees between 10 and 250.¹⁶ This choice is motivated by the fact that SMEs are considered the cornerstone of the Italian economic system¹⁷ and that the endogenous development literature is traditionally founded on the study of SMEs (Pyke *et al.*, 2006) due to their higher degree of embedment in the local context.

The second criterion is geographic. Firms have been selected in two different provinces within regions that represent 'extreme cases' (Saunders *et al.*, 2007) to explore how different mixes of local resources influence firms in two different contexts. These two regions are very different from each other both in terms of macroeconomic performances and 'territorial capital endowment'. In particular, the selection refers to a wealthy region in the North and one low performing province in the South. As Chart 4.1 shows, Lombardia is the best performing region in terms of value added per capita in the period 2000-2012, while Sicily is the 3rd worst performing region.

¹⁶ Only two firms had 9 employees at the time the interview was conducted.

¹⁷ <http://www.governo.it/backoffice/allegati/75045-9261.pdf> accessed on June 1st, 2015; h: 4.24 pm

Chart 4.1: Regional Value Added (Euros)/Resident Population (Average 2000-2012)



Source: Adapted from ISTAT

Moreover, these two regions are very different in terms of local resource endowments. In Table 4.2, it is possible to see that Lombardia outperforms Sicily on each indicator considered in the quantitative analysis, with the exception of natural and artistic capital as well as the percentage of religious people.

Table 4.2: Tangible and Intangible resources Lombardia and Sicily (Average 2000-2012)

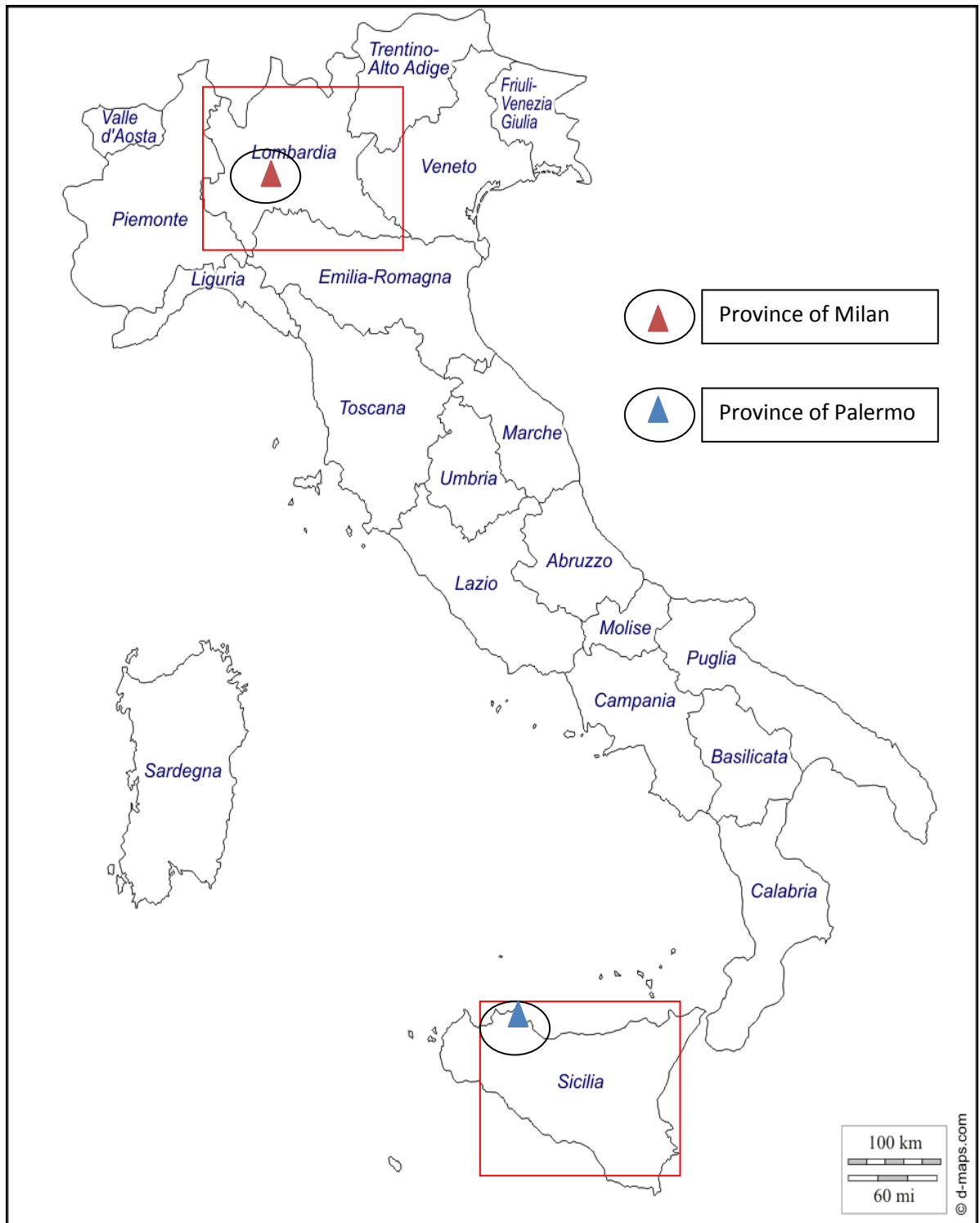
| Region | Lombardia | Sicilia | Italian Average |
|--|-----------|-----------|-----------------|
| Tertiary education (levels 5 and 6)(% of people) | 13.6 | 10.9 | 12.8 |
| Households using internet (%) | 45.1 | 30.8 | 39.3 |
| Graduates in science and technology subjects (% of people) | 0.15 | 0.09 | 0.11 |
| Employees in R&D (% of people) | 0.40 | 0.17 | 0.3 |
| Patents Registered at the European Patent Office (EPO) (% of people) | 1.37 | 0.12 | 0.59 |
| Diffusion of Theatre and Music Performances (tickets sold/population*100) | 63.23 | 37.66 | 49.72 |
| New Companies/Resident Population (per 10 000 people) | 52.18 | 40.39 | 47.64 |
| Money given to associations (% of people >14 years that have donated) | 22.1 | 6.8 | 16.9 |
| % People Carrying out Social Activity (Meetings of cultural, recreational or associations of other type) | 9.8 | 6.1 | 9.5 |
| Free-of-charge activity for volunteer groups or associations(%) | 11.9 | 5.1 | 9.0 |
| Religious People (%) | 35.2 | 40.1 | 32.6 |
| N. of violent crimes (per 10.000 people) | 17.6 | 17.8 | 15.7 |
| Important natural sites (%) | 9.05 | 15.60 | 16.45 |
| Visitors public institutes of antiquities and art | 1,327,280 | 4,037,658 | 2,019,992 |
| Railways (Km)/Terrestrial Area (km2) (%) | 6.75 | 5.40 | 5.27 |
| Bank Credit As % of GDP | 75.79 | 29.35 | 47.46 |
| Density | 396 | 195 | 178 |

Source: Adapted from ISTAT, Eurostat, Ministero dello Sviluppo Economico

The qualitative analysis has been carried out at provincial level.¹⁸ Although it has not been possible to conduct the quantitative analysis at provincial level, due to the poor data availability, for the qualitative analysis, provinces appear more homogenous and appropriate than regions in reflecting differences across Italian territories. The regional level is also too large and diverse to conduct such a limited number of interviews; therefore, firms have been selected within two different provinces, where the region's main town is located; 11 firms are located in the Province of Milan (main city of Lombardia) and 15 in the Province of Palermo (main city of Sicily). Figure 4.1 shows the map of Italy, its 20 regions and the location of the provinces of Milan and Palermo.

¹⁸ Although the decree law n.56, April 2014 (DDL Delrio) has redefined the competences of Italian provinces, it is still possible to use this classification for the purpose of this analysis.

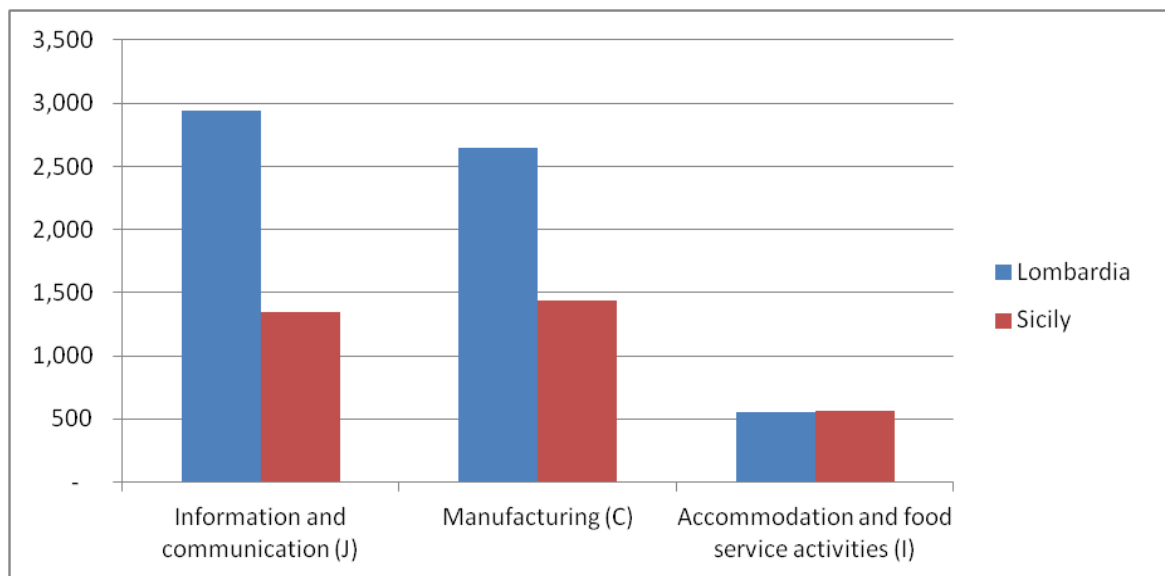
Figure 4.1: Map of Italy



Source: d-maps.com available at http://d-maps.com/carte.php?num_car=18137&lang=it accessed on April 17th, 2017; h 12.00

The third criterion used to purposively select firms is the economic sector. Sampled firms belong to three different industries: 'Accommodation and food service activities' (A&F), 'Manufacturing' (Man.) and 'Information, Communication and Technology' (ICT). The first two have been chosen as they belong to sectors with long historical and economic Italian traditions. In fact, Italy is famous worldwide for the quality of its food service activities, manufacturing products, as well as for being a country with a strong tourist vocation. The third sector (ICT) has been selected to include an innovative industry which is rapidly expanding and not linked to the past economic traditions of the country. In Chart 4.2, it is possible to see the different contributions in terms of firms' value added of the three selected sectors, both in Lombardia and Sicily.

Chart 4.2: Firms Value Added (thousands of Euros) at sector level (average 2003-2012)



Source: Adapted from AIDA database sampled firms

Lastly, the fourth criterion is related to performance. Firms have been selected if they present stable or growing performance in terms of turnover, over the last 3/5 years. This criterion has been chosen as the aim of the analysis is to find out how local assets constitute a source of a firm's competitive advantages; therefore, the focus has been upon healthy growing firms. However, it is important to remember that new firms usually tend to grow quickly when they are newly born until reaching a sufficient scale (Dobbs and Hamilton, 2007). Growth is also difficult to maintain (Barringer *et al.*,

2005) as it is not linear but fluctuates; thus, the sample includes some firms, particularly Sicilian firms, which are considered historically successful and healthy but that present disruption in their growth. In fact, some firms are recovering from short periods of negative growth due to the 2008 financial crisis or other particular reasons.

The first part of Table 4.3 shows a general profile of the selected firms, name, sector of activity, constitution date and number of employees. In Milan, 5 firms belong to the Accommodation and food service sector, 4 to the ICT sector and 2 to Manufacturing. In Palermo, 6 firms belong to the Accommodation and food service sector, 5 to the ICT sector and 4 to Manufacturing. The firms' real names have been anonymised to ensure confidentiality; firms located in Milan are characterized by the acronym (MI), while firms located in Palermo by the acronym (PA). More detailed information about individual firms will be provided in boxes 6.1 and 6.2 of Chapter 6.

With regard to access, key informants in each region, such as entrepreneurs from different fields or members of a category of associations, have been extremely useful in selecting and contacting firms with the required characteristics. The diverse number of interviews between Milan and Palermo is due to the easier access in Palermo where, thanks to the network of local contacts, it was possible to recruit a higher number of firms. As the right side of Table 4.3 shows, most interviews were conducted face to face at the location of the firm; only 2 interviews were conducted in a neutral place and 3 via Skype.

Table 4.3: Firms interviewed by province, size, age and sector of activity.

| Name | Sector | Activity | Location (Province) | Constitution Year | Average N. of Employees (2015) | Interviewee Position | Place where the interview was conducted |
|-------------------------|--------|--------------------------------|-----------------------|----------------------|---|----------------------|---|
| CountryHotel&Rest(MI) | A&F | Hotel & Restaurant | Countryside of Milan | 2012 | 16/18 | Owner | Neutral Place |
| Catering(MI) | A&F | Food Catering Services | Milan | 2007 | 10 + 150 seasonals | Owner & Manager | Neutral Place |
| CentralHotel(MI) | A&F | Hotel | Milan | 2010 | 38 + 4 seasonals | Manager | Firm |
| | | Bar located inside an Interior | | | | | |
| Cafe'(MI) | A&F | Design Studio & Vintage Shop | Milan | 2015 | 13 | Manager | Firm |
| Restaurant(MI) | A&F | Restaurant | Milan | 2013 | 11 | Owner & Chef | Firm |
| Digital studio A (MI) | ICT | Web Design/Web Agency | Milan | 2009 | 9 | Partner | Firm |
| | | | From Corman (Milan) | | | | |
| Softwarehouse(MI) | ICT | Software Retail House | to Gallarate (Varese) | 1983 | 29 | Manager | Firm |
| Digital studio B(MI) | ICT | Digital Design company | Milan | 2012 | 11 | Partner | Firm |
| Microsoft (MI) | ICT | Innovation & Technology | Milan | 1996 | 14 | Manager | Skype |
| ClothesManu(MI) | Man. | Clothes Manufacturing | Milan - Varese | 2002 | 20 | Owner | Firm |
| JewelleryManu(MI) | Man. | Jewellery Manufacturing | Milan-Rome | 2005 | 45 | Owner | Skype |
| VillaRestaurant(PA) | A&F | Restaurant | Palermo | 2000/2010 | 18 + seasonals | Owner | Firm |
| CastleRestaurant(PA) | A&F | Restaurant&FoodCatering | Palermo | 2012 | 30 | Owner | Firm |
| IslandRestaurant(PA) | A&F | Restaurant | Ustica (Palermo) | 1958/2014 | 15 | Owner | Neutral Place |
| Threehotels(PA) | A&F | Hotel | Palermo- Mondello | 1967 | 60/120 seasonals | Owner | Firm |
| | | | | | 2 + 40 seasonals (all society 8 fixed/110 seasonals) | | |
| Hotelbythesea(PA) | A&F | Hotel | Terrasini (Palermo) | 1965 | | Owner | Firm |
| TwoCentralhotels(PA) | A&F | Hotel | Palermo | 2010 | 10 | Manager | Firm |
| HealthICT(PA) | ICT | Software Development | Palermo | 2008 | 20 | Manager | Firm |
| Webagency(PA) | ICT | Web Agency/Computer Shop | Palermo | 2006 | 9 | Owner | Firm |
| SocialInnovationICT(PA) | ICT | IT Projects developer | Palermo | 2010/2015 | 10 | Manager | Firm |
| CultureICT(PA) | ICT | IT Projects developer | Palermo | 2009 | 16 | Owner | Firm |
| DataProtection(PA) | ICT | Software Development | Palermo | 2007/2013 | 14 | Manager | Skype |
| ElectricManu(PA) | Man. | Electronic Manufacturing | Carini (Palermo) | 1980 (spin off 2000) | 150 | Manager | Firm |
| FurnitureManu(PA) | Man. | Furniture Manufacturing | Carini (Palermo) | 1971 | 40 | Manager | Firm |
| BeverageManu(PA) | Man. | Beverage Manufacturing | Palermo | 1890 | 70 | Owner | Firm |
| FoodManu(PA) | Man. | Food Manufacturing | Palermo | 1916 | 20 + 5 (seasonals) | Owner | Firm |

Notes: Firms' real names have been anonymised to ensure confidentiality

SEMI-STRUCTURED INTERVIEWS AND THEMATIC ANALYSIS

The data collection technique is based on the use of semi-structured interviews to gain the perspectives of owner-managers who have a clear view of the firms' strategy and their operating procedures. Corbetta (1999) defines qualitative interviews as conversations having a cognitive purpose, guided by the interviewer on the basis of a flexible scheme. Thus, interviews are not regular conversations where the roles of interlocutors are placed at the same level, but guided conversations in which the interviewer establishes the topics and aims to ensure that the outcome matches the purpose of knowledge that he/she has set.

The interview questions were informed by the literature review. A list of main topics was covered following a flexible schedule (Saunders *et al.*, 2007). The interview consisted of 22 main questions (see Appendix B for the full list of questions) and the average length of each interview was 45 minutes. A set of prompts helped to probe the interviewees, in case they were not disclosing sufficient or clear information to understand their point of view. This provided the possibility to gain a deeper understanding of entrepreneurs' perceptions, views and ideas, asking for clarification, unpacking and elaborating different concepts particularly about the role of intangible elements of territorial capital that have been poorly measured by the quantitative analysis.

The interviews have been transcribed and were read two/three times. Information was codified and grouped into main 'themes' identified in the two provinces. Further information about the thematic analysis is provided in Chapter 6 and Appendix C.

4.3.3 Limitations of the Quantitative-Qualitative analysis and mixed-method strategy

As previously explained, the mixed-method strategy, which combines quantitative and qualitative findings, allows the researcher to obtain different levels of information as well as overcoming limitations of the qualitative and quantitative methods (Creswell, 2003). In fact, both methods have benefits and limitations (Creswell, 2003)

and results might be affected by the techniques and procedures used (Saunders *et al.*, 2007).

From one side, the quantitative analysis allows the investigation of the impact of territorial capital at national level, using a large sample of firms observed during a long period of time, correlating independent and dependent variables to determine causal relations (*Rq1*). However, the quantitative method does not allow an understanding of the process through which territorial capital contributes to firms' performance practically. In contrast, the qualitative procedure explains *how* territories influence firms, from the perspective of entrepreneurs themselves (*Rq2*).

Secondly, in terms of geographical unit (*Rq3*), the econometric analysis does not permit an investigation of what mix of resources drives firm performance within individual regions, as better explained in Chapters 5 and 6. The qualitative procedure overcomes this limitation by studying the different nature and operation of territorial capital within specific local areas, comparing two provinces in the North and South of Italy.

Additionally, the use of secondary data presents a number of constraints. In fact, the available data are not always sufficient to quantify different dimensions of territorial capital accurately; in particular, it is difficult to find meaningful proxies able to capture the variety and multidimensionality of intangible resources such as local cultures and institutions that will turn in unmeasured variables (Saunders *et al.*, 2007). The use of secondary data can also create problems of measurement validity as selected proxies do not always perfectly match the measures needed.¹⁹ Also, although secondary data are likely to be highly reliable, as they are collected from sources which have authority and reputation, they might incorporate measurement bias caused by changes in the way data are collected over years (Saunders *et al.*, 2007).

Thus, qualitative analysis overcomes these limitations by exploring, in more depth, different aspects which have been only partially quantified through the use of proxies. This type of analysis is better able to capture the multidimensionality and complexity of the investigated phenomenon and consider further aspects which were

¹⁹ A common way to overcome this problem is to examine how other researchers have coped with this problem in a similar context (Saunders *et al.*, 2007) as Table 4.1 shows.

not quantified or even recognized *a priori* to get a deeper and more comprehensive insight into the reality.

At the same time, interviews present limitations in terms of reliability and generalizability (Saunders *et al.*, 2007). They are extremely time consuming and as other data collection techniques, they can be subject to misinterpretation of the facts. The issue of reliability is related to the interviewer and interviewee biases and to the fact that interviews are highly subjective. Qualitative research is fundamentally interpretative and thus subject to the personal view and background of the researcher (Creswell, 2003). Moreover owners/managers may choose not to reveal particular aspects that are crucial to explore and understand the phenomenon (Saunders *et al.*, 2007). Additionally, the use of semi-structured interviews does not allow generalization to be made about the entire population as they are based on a small number of cases (Saunders *et al.*, 2007). Another limitation can be related to the fact that, as the topic is complex and dynamic, interview findings may reflect the reality at the time they are collected; therefore findings are not necessarily repeatable (Saunders *et al.*, 2007).

Hence, this research triangulates econometric results with qualitative data. More specifically it uses information collected through interviews not only to provide additional information (*Rq2*), but also to probe, clarify and supplement the statistical significance/non significance of variables, both at geographical and sector level (*Rq3*), getting a better understanding of the reality. All negative and discrepant information between the methods is also presented and discussed.

Triangulation provides many benefits such as increasing the level of confidence in the results, revealing unique findings and providing a better understanding of the problem (Thurmond, 2001). However, although the nested mixed-method approach has many strengths, in some cases, it can be problematic to interpret the final results when there are discrepancies between methods that may increase the level of confusion (Creswell, 2003).

In this analysis, the limit of the adopted mixed-method approach is given by the different unit of analysis which does not allow direct comparisons of results. While the quantitative analysis is conducted considering 20 regions (NUTS2) operating in 12 sectors, the qualitative analysis refers to firms located in 2 provinces (NUTS3) and

operating in three sectors. Thus, the mixed-method only enables expanding the econometric results at geographical and sector level, with the additional insight provided by owners/managers in the two provinces.

Furthermore, it is important to highlight that while the quantitative analysis focuses on the impact of territorial capital in terms of firms' productivity, the qualitative analysis emphasises firms' performance in terms of turnover growth and competitiveness, in a broader general sense. In fact, the concept of productivity is not always easily understandable to all entrepreneurs compared to the wider notion of 'performance'. The main differences between the two methods are reported in the table below.

Table 4.4: Differences between Quantitative and Qualitative Methods

| | Sample Size | Economic Sectors | Geographical unit | Measure of Firms' Performance | Data Collection | Data Analysis |
|--------------|---------------------------|------------------|---|---|----------------------------|------------------------------------|
| Quantitative | 91.652 (Random Sample) | 12 | 20 regions (all Italy); North & Center South regions | Productivity | Secondary Data | Panel Data econometric estimations |
| Qualitative | 26 (Purposive Sample) | 3 | 2 provinces (Milan & Palermo) | Turnover growth, competitiveness and success in a broader general sense | Semi-structured interviews | Thematic Analysis |

4.4 Research Ethics

Ethical issues may arise due to the fact that this research deals with information at the firm level. This study has been conducted in accordance to Middlesex University's code of practice for research: principles and procedure.²⁰ It has taken into account ethical issues during the entire research process, from the formulation of the research questions, data gathering, data analysis to the writing up phase.

In particular, different strategies have been adopted to guarantee the privacy of all firms involved. During the quantitative analysis, firms' anonymity has been guaranteed; firms' names have not been disclosed; and financial information has been

²⁰ http://www.mdx.ac.uk/data/assets/pdf_file/0004/58387/Code-of-Practice-for-Res-July2011.pdf

stored safely, protecting relevant files with security passwords. Additionally, all data have been treated objectively and accurately without any sort of manipulation.

With regard to the qualitative phase, ethical issues were raised during the phase of data gathering and analysis. Before proceeding with interviews, owner-managers were asked to sign informed consent and they were made aware of: 1) the purpose of the research; 2) the role of their interview in the overall study; 3) The way in which data collected would be analyzed and kept anonymous; 4) potential benefits of the research, in terms of possible suggestions/directions to local government; and 5) their signed consent to be cited in the acknowledgment of this study or for future publications.

4.5 Conclusion

The study of the role of tangible and intangible resources on firm performance is complex and benefits from creative design, based on pragmatic considerations, not on any dogmatic adherence to the qualitative or quantitative creeds.

The methodology of this research is based on the collection of quantitative and qualitative data, and this is justified by both methods presenting benefits and limitations; these limitations can be partially overcome by combining the quantitative and qualitative approaches. In particular, the use of mixed-methods enables a better understanding of the research problem by combining numeric trends with qualitative details (Creswell, 2003). The two methods are therefore combined following a nested strategy and aimed at answering different research questions, collecting information at different levels (Creswell, 2003). While *Rq1* mainly involves the use of quantitative techniques, based on econometric estimations, *Rq2* adopts a qualitative approach, based on interviews with owner-managers and thematic analysis, whilst *Rq3* benefits from both methods. Hence, this research can be considered both 'explanatory' and 'exploratory' as it attempts to study not only the relationship existing between variables, but also to investigate 'what is happening' and 'how' (Saunders *et al.*, 2007).

The nested mixed-method model has been chosen as it combines the advantages of both methods, allowing an understanding of the topic from different perspectives

and levels, enriching the point of view of the research, increasing its accuracy and the validity of results (Creswell, 2003).

Chapter 5: Territorial capital of Italian regions and firm productivity

5.1 Introduction and main hypothesis

This chapter aims at investigating whether different territorial assets,²¹ embedded across Italian regions, play a role in determining firms' productivity. Although the relevance of individual territorial resources has been frequently discussed in the related literature (Storper, 1997, Garofoli, 2002, Camagni, 2008), there is little empirical evidence on the role of territorial capital in supporting firms' productivity. In fact, whilst the majority of studies have focused on the importance of single territorial assets such as human, social or institutional capital, among others (Backman, 2014, Nerozzi *et al.*, 2014; Lasagni *et al.*, 2015), this study argues that each resource should be analyzed in relation to the presence of other territorial components. Hence, one of its main contributions is to consider the simultaneous existence of different assets which together shape economic activities, assessing their impact on firms' performance.

More specifically, the quantitative analysis seeks to answer two research sub-questions:

Rq1) What territorial resources drive performance of Italian firms? (Quantitative analysis)

Rq3) What territorial resources drive firms' performance across different geographical areas and economic sectors? (Quantitative and Qualitative analysis)

The empirical analysis considers a whole range of regional resources, including tangible and intangible components. Although tangible capital is important, firms' investment in soft assets is now considered as one of the main factors affecting productivity (Corrado *et al.*, 2014). As explained in Chapters 2 and 3, scholars also emphasize the importance of intangible assets at the regional level, although they focus on a limited set of determinants (Black and Lynch, 1996; Maroccu *et al.*, 2012; Lasagni *et al.*, 2015).

²¹ This research uses the terms resources/assets/factors/components interchangeably.

Another innovative feature of this work is the breadth of sectors considered in the empirical analysis. While the majority of studies on Italian productivity focus exclusively on manufacturing (Cingano and Schivardi, 2004; Marrocu *et al.*, 2012; Aiello *et al.*, 2014; Lasagni *et al.*, 2015), this study includes the service sector. This is important as in Italy, approximately two-thirds of GDP is accounted for by services and omitting this sector greatly misrepresents the reality of Italian industry structure.²²

The empirical analysis presented in this chapter aims at testing three main hypotheses:

H1: All else being equal, firms' productivity performance is positively related to the total endowment of territorial capital. This highlights the importance of the co-existence of both tangible and intangible territorial assets. This hypothesis is investigated using four indicators of tangible regional capital (natural, artistic, financial capital and infrastructure) and three combinations of proxies for intangible capital obtained with factor analysis (cognitive, creative, social, cultural and institutional capital). These two types of assets cover a wide range of regional characteristics that are expected to be important in determining companies' productivity, as explained in chapter 3.

Additionally this study focuses on Italy, a country where the cultural and historical background has contributed to the emergence of wide economic disparities (Tabellini, 2010). Even 150 years after political reunification, the North of Italy is characterised by higher income per capita and stronger performance in terms of productivity, employment and innovation, compared to the rest of the country and particularly to the Southern regions. Little is known of whether the different endowments of territorial capital contribute to the persistence of regional disparities or whether they support the highest productivity of firms located in the most industrialized regions of the North. Hence, an additional contribution of this analysis is to assess whether the well-known Italian economic divide, in terms of productivity, is influenced by the way in which firms take advantage of available territorial capital. The underlying hypothesis is *H2: All else being equal, the impact of territorial capital in the Northern regions is*

²² http://www.esteri.it/mae/en/ministero/servizi/benvenuti_in_italia/conoscere_italia/economia.html
accessed on December 21st, 2015; h: 1.55 pm

stronger compared to the rest of the country. In fact northern regions are more endowed with different forms of territorial capital, for example in terms of creativity, social capital and institutions, among others. Therefore it is possible that the co-existence of these valuable complementary resources contributes to make firms more efficient as it helps to make the working environment more supportive. This hypothesis also assumes that regional disparity across the Italian territory is persistent, and that territorial capital does not play a role in the process of convergence of the rest of Italy to the productivity level of companies located in the North.

Lastly, the strong heterogeneity across industrial sectors implies that some forms of territorial capital would be more important in promoting productivity performance in specific industries. (*H3: All else being equal, there is a significant difference in the way territorial capital affects productivity performance in firms operating within specific industries*). Testing this hypothesis allows drawing conclusions on which forms of territorial capital are more important to promote the development of specific industries. For instance, it is reasonable to expect that some local resources such as human and financial capital have a positive effect across the whole industry spectrum; the presence of natural and artistic capital is expected to positively impact the tourist sector, whereas social capital and transport infrastructure are likely to affect firms, particularly in the manufacturing sector. Investigating these issues will lead to a better understanding of the role of territorial capital in shaping the industry structure, as well as providing policy implications at sector level.

The sample of Italian firms is observed over the period 2004-2013. Information at the company level includes 91,652 enterprises, operating in 12 different economic sectors (SIC 1 digit level) and distributed across 20 regions. The company data are matched to information on regional variables extracted from public datasets over the period 2001-2012. The regional information is used to construct proxies for tangible and intangible dimensions of territorial capital, as explained later. The analytical framework is based on the derivation of a measure of TFP, using the Levinsohn and Petrin (2003) methodology to account for the endogeneity of factor inputs, which is then regressed on different types of tangible and intangible forms of territorial capital.

This chapter is organized into six sections: 5.2 describes the econometric model, whereas 5.3 and 5.4 present the firms and the territorial capital datasets. Section 5.5

introduces the analysis; in particular, 5.5.1 presents the estimation of the Cobb-Douglas production function with the OLS model; 5.5.2 describes the issue of endogeneity which characterizes the estimation of the Cobb-Douglas function at firm level, presenting results obtained with alternative corrective estimators; 5.5.3 studies the effect of territorial capital on TFP for the entire sample of firms, while 5.5.4 describes its impact both at geographical (North vs Centre South) and at sector level. Lastly, section 5.6 summarizes the main results and presents the conclusion of this chapter.

5.2 The analytical model

The analysis begins with the estimation of a Cobb-Douglas production function at firm level, where company level output (Y_{it}) is expressed as a function of physical capital (TK_{it}), intangible capital (IK_{it}) and the total number of employees (L_{it}):

$$Y_{ijt} = TFP_{ijt} TK_{ijt}^{\alpha_1} IK_{ijt}^{\alpha_2} L_{ijt}^{\alpha_3} \quad (1)$$

i denotes firm, j denotes regions and t denotes time. Firms' tangible capital stock includes equipment, machinery and plants, while intangible capital includes patents, R&D expenditures, copyrights, trademarks, software, and employee training among others. Data on tangible, intangible capital and labour have been entirely downloaded from the AIDA database and based on firms' balance sheets. The inclusion of intangible assets in the production function represents a novel contribution of this work. In fact, researchers often disregard intangible capital at firm level (exceptions are: Crass and Peters, 2014; Bontempi and Mairesse, 2008; Marrocu *et al.*, 2012 among others) as their measurement is considered a challenging task. However, despite acknowledging potential limitations due to the fact that this information is directly provided by companies, the inclusion of intangible assets allows the identification of the role of regional intangible capital; if firms' intangibles are missing from the specification, regional intangibles could erroneously capture their effect.

The variables Y , TK and IK are expressed in thousands of Euros. TFP captures all increases in output that are not caused by changes in measured inputs. Denoting the log of variables in lower case letters, it is possible to rewrite equation (1) as follows:

$$y_{ijt} = tfp_{ijt} + \alpha_1 tk_{ijt} + \alpha_2 ik_{ijt} + \alpha_3 l_{ijt} + \gamma_{ijt} \quad (2)^{23}$$

$$\text{where: } tfp = \beta_0 + \varepsilon_{it} \quad (3)$$

Equation (3) represents *tfp* as a composite term which includes mean efficiency levels across firms and over time (β_0) and a time and producer-specific deviation from that mean (ε_{it}). The latter can be further decomposed into an observable and an unobservable component, including measurement errors and random noise. The observable component in this analysis is represented by a combination of different forms of territorial capital (*TC*).

$$tfp_{ijt} = \beta_0 + \sum_{z=1}^N \beta_z TC_{jt} + u_{ijt} \quad (5)$$

As discussed in the previous chapters, this study accounts for tangible (*TTC*) and intangible (*ITC*) territorial capital components, described in the next section in detail. In addition, equation (5) is augmented with a set of control variables to account for different sources of heterogeneity and unknown factors that are likely to affect coefficient estimates. Controls include time dummies (*dt*), capturing the effects of macroeconomic phenomena which vary over time, but not across firms; geographical dummies (North - Centre - South) to control for geographical diversity, in particular for the well-known Italian divide North vs South (*reg*); sector dummies to account for the presence of heterogeneity across industrial sectors (*sect*); firms' size to account for differences between small, medium and large firms, and age, which measures the number of years from the constitution date. Therefore, it is possible to re-write equation (5) as follows:

$$tfp_{ijt} = \beta_0 + \sum_{z=1}^{N_T} \beta_z TTC_{jt} + \sum_{z=1}^{N_I} \beta_z ITC_{jt} + \sum_{t=1}^n \delta dt + \sum_{r=1}^m \gamma reg_r + \sum_{s=1}^S \theta sect_{st} + \rho size_{ijt} + \sigma age_{ijt} + u_{ijt} \quad (6)$$

Equation (6) is the benchmark specification. This is estimated for the pooled sample and by dividing companies into different geographical areas (North and Centre-South) and industrial sectors, to account for the heterogeneous impact of territorial capital on performance.

²³ Following Harris and Moffat (2011), after the direct estimation of equation (2) which provides the values of input elasticities, TFP is measured as the level of output which is not attributable to classic inputs (tangible, intangible capital and labour), but only to efficiency levels and technical progress as follows:

$$tfp_{ijt} = y_{ijt} - \alpha_1 tk_{ijt} - \alpha_2 ik_{ijt} - \alpha_3 l_{ijt} - \gamma_{ijt} \quad (4)$$

5.3 The ‘Firms database’: sample, data cleaning and descriptive statistics

The ‘Firms database’, introduced in 4.3.1, includes data on Italian firms, extracted from the AIDA Bureau Van Dijk dataset and contains comprehensive information on Italian commercial companies, collected and re-elaborated from their official financial statements, in line with the IV CEE Directive. Available data cover the period from 2004 to 2013.

Outliers have been treated at sector level; firstly, negative values of the four main variables, (valued added, tangible, intangible capital and employment) have been replaced with missing values. Secondly, for each relevant variable and for each sector, the distribution has been divided in percentiles. Following the methodology adopted by Lasagni *et al.* (2015) and ECB (2014),²⁴ variables in level have been considered missing values if the corresponding value belonged to the 1st or 99th percentile. Value added, tangible and intangible capitals have been adjusted for inflation using industry level deflators extracted from the EUKLEMS database²⁵ (gross value added, price indices, 2005 = 100). More specifically, nominal values have been deflated by replacing the unknown individual firms’ prices with the price index for industries at SIC 2 digit level.²⁶

Table 5.1 shows the final sample consisting of 91,652 firms operating in a wide range of industrial sectors, including manufacturing and service sectors (SIC 1)²⁷. The

²⁴ ECB (2014) deals with the concept of productivity growth; therefore, outliers have been calculated if the corresponding growth (and not level) for each variable belonged to the 1st or 99th percentile.

²⁵ <http://www.euklems.net/> EUKLEMS is a project aims to create a database on measures of economic growth, productivity, employment creation, capital formation and technological change at the industry level for all European Union member states from 1970 onwards.

²⁶ Nominal value added is an inappropriate measure of firms’ output because changes in input/output prices can be erroneously interpreted as changes in productivity (Eberhardt and Helmers, 2010); however, the deflation of value added using prices at industry level, instead of firm level, is an imperfect solution, particularly in non-competitive markets, where individual firms are able to negotiate prices of inputs and/or charge different prices for outputs (Van Beveren, 2010). Under imperfect competition, output prices are significantly dispersed across firms, even within the same sector, and correlated with changes in labour and capital. Despite this imperfect solution, prices at firms’ level are rarely available; furthermore, Mairesse and Jaumandreu (2005) demonstrate that using individual output prices, instead of industry prices, certainly improves the measurement but does not markedly modify capital, labour and scale elasticities.

²⁷ The decision to not further disaggregate the Manufacturing sector, despite this high number and heterogeneity of firms in this category, has been made for practical reasons. In fact by disaggregating at SIC 2 digit level, this analysis would have had considered 24 different manufacturing sub-sectors; additionally,

highest number is concentrated in the Manufacturing sector, while the lowest belongs to Other services, Financial and insurance activities, and Education sectors.

With regard to the geographical distribution, the highest number of firms is located in Lombardia, which is the most industrialized Italian region, followed by Veneto and Emilia Romagna. The lowest number is located in Basilicata, Molise and Val D'Aosta.

by disaggregating all the other sectors at SIC 2 digit level, for consistency reasons, the total number of sub-sectors under investigation would have been around 65. A limitation of the approach adopted is that it does not allow exploring the heterogeneity of firms within each category, something that future research could consider further.

Table 5.1: Number of Firms by sector and geographical distribution

| Sector | N.of firms | (%) |
|--|------------|--------|
| Manufacturing (C) | 40,669 | 44.4% |
| Wholesale and retail trade, repair of motor vehicles and motorcycles (G) | 20,137 | 22.0% |
| Accommodation and food service activities (I) | 6,110 | 6.7% |
| Transportation and storage (H) | 5,639 | 6.2% |
| Scientific research and other technical activities (M) | 4,226 | 4.6% |
| Administrative and support service activities (N) | 4,194 | 4.6% |
| Information and communication (J) | 4,075 | 4.4% |
| Human health services, residential care and social work activities (Q) | 2,981 | 3.3% |
| Arts, entertainment and recreation (R) | 1,406 | 1.5% |
| Other services (S) | 918 | 1.0% |
| Financial and insurance activities (K) | 650 | 0.7% |
| Education (P) | 647 | 0.7% |
| Total | 91,652 | 100.0% |
| Region | | |
| Lombardia (North) | 23,294 | 25.4% |
| Veneto (North) | 10,644 | 11.6% |
| Emilia Romagna (North) | 9,456 | 10.3% |
| Lazio (Center) | 7,653 | 8.4% |
| Toscana (Center) | 6,813 | 7.4% |
| Piemonte (North) | 6,735 | 7.3% |
| Campania (South) | 5,318 | 5.8% |
| Puglia (South) | 3,539 | 3.9% |
| Sicilia (South) | 3,272 | 3.6% |
| Marche (Center) | 2,847 | 3.1% |
| Friuli Venezia Giulia (North) | 2,099 | 2.3% |
| Liguria (North) | 2,031 | 2.2% |
| Abruzzo (Center) | 1,655 | 1.8% |
| Trentino Alto Adige (North) | 1,611 | 1.8% |
| Sardegna (South) | 1,543 | 1.7% |
| Umbria (Center) | 1,279 | 1.4% |
| Calabria (South) | 1,086 | 1.2% |
| Basilicata (South) | 376 | 0.4% |
| Molise (South) | 259 | 0.3% |
| Val D'Aosta (North) | 142 | 0.2% |
| Total | 91,652 | 100.0% |

With respect to firms' size, as explained in 4.3.1, the sample selection considers only firms that have at least 10 employees in 2008. This date has been chosen as it is the intermediate point of the data availability (2004-2013). However, observations cover the period 2004 to 2013; hence, it is possible that in some years, before or after 2008, some firms had fewer than 10 employees. Table 5.2 shows the size distribution, based on the average number of employees for the entire period; 84.7% of firms

belong to the category of SMEs, while only 2.2% are large firms, highlighting the high importance that SMEs play in the Italian economy.²⁸ The average firm age is 18 years.

Table 5.2: Firm Distribution by average employment (2004-2013)

| Size | Employees Number | N.of firms | (%) |
|--------|------------------|------------|--------|
| Micro | less than 10 | 11,507 | 12.6% |
| Small | 10 ≤ and < 50 | 63,675 | 69.5% |
| Medium | 50 ≤ and < 250 | 13,973 | 15.2% |
| Large | ≥250 | 2,059 | 2.2% |
| n/a | n/a | 439 | 0.5% |
| Tot | Tot | 91,653 | 100.0% |

Table 5.3 shows descriptive statistics at two different levels: firms' geographical location and firms' economic sector. Summary statistics for the whole sample are reported in Appendix A, Table A1. At sector level, the Financial and insurance sector, Information and communication, and Manufacturing show, on average, the highest level of value added in the period that from 2004 to 2013, while Accommodation and food service activities are characterized by the lowest level.²⁹ In terms of labour productivity, the Financial and insurance sector, Scientific research and other technical activities, and Information and communication have the highest level of productivity, while Accommodation and food service activities have the lowest. In terms of intangible/tangible assets ratio, the Financial and insurance sector, Information and communication, Arts, entertainment and recreation have the highest level, while Transportation and storage, and Manufacturing have the lowest.

Looking at the regional distributions of variables in Table 5.3, it is possible to identify the well-known Italian divide between Northern and Southern regions, documented in Ascari and Di Cosmo (2005), among others. Regions located in the North show, on average, the highest levels of value added and labour productivity,

²⁸ <http://www.governo.it/backoffice/allegati/75045-9261.pdf> accessed on June, 1st 2015; h: 4.24 pm

²⁹ Possible reasons for the low contribution of this sector, despite the high touristic vocation of Italy, are explained in a report produced Confindustria (Confindustria, *Per un progetto paese sul territorio* 2005, available at <http://www.federturismo.it/>) and mainly identifiable in the lack of competitiveness of Italy in terms of quality/price, decrease in international demand, insufficient infrastructure, human skills and ineffective marketing strategies. Moreover, the Accommodation and Food sector does not include all activities related to tourism as well as the multitude of satellite activities.

while southern regions show the lowest levels. A similar pattern is generally observed when looking at firms' intangible/tangible assets ratio, with the exception of Lazio.

Table 5.3: Value Added, Labour Productivity, Intangible/Tangible ratio - by sector of activity and regional location (average 2004-2013)

| Sector | Labour Productivity (Value | | |
|--|----------------------------|------------------------|---------------------------|
| | Value Added | Added/N. of employees) | Intangible/Tangible Ratio |
| Financial and insurance activities (K) | 3670.5 | 100.3 | 11.2 |
| Information and communication (J) | 2644.4 | 66.5 | 8.6 |
| Manufacturing (C) | 2413.7 | 55.4 | 0.6 |
| Transportation and storage (H) | 2321.7 | 52.0 | 1.0 |
| Scientific research and other technical activities (M) | 2140.7 | 67.2 | 3.1 |
| Administrative and support service activities (N) | 2042.5 | 48.3 | 2.5 |
| Human health services, residential care and social work activities (Q) | 1771.9 | 31.6 | 1.6 |
| Wholesale and retail trade, repair of motor vehicles and motorcycles (G) | 1572.7 | 57.1 | 1.3 |
| Arts, entertainment and recreation (R) | 1535.7 | 54.3 | 4.2 |
| Other services (S) | 1198.0 | 36.5 | 1.5 |
| Education (P) | 667.3 | 33.5 | 2.9 |
| Accommodation and food service activities (I) | 643.2 | 31.6 | 1.2 |
| Total | 2045.9 | 54.2 | 1.5 |
| Region | | | |
| Lombardia (North) | 2566.0 | 63.4 | 1.7 |
| Trentino Alto Adige (North) | 2433.1 | 57.5 | 0.9 |
| Piemonte (North) | 2368.4 | 54.8 | 1.6 |
| Emilia Romagna (North) | 2358.2 | 57.0 | 1.2 |
| Val D'Aosta (North) | 2334.4 | 55.2 | 1.3 |
| Veneto (North) | 2102.9 | 52.4 | 0.8 |
| Friuli Venezia Giulia (North) | 2022.4 | 48.7 | 0.8 |
| Liguria (North) | 1950.9 | 59.4 | 1.9 |
| Umbria (Center) | 1949.5 | 44.9 | 1.3 |
| Lazio (Center) | 1758.1 | 53.2 | 4.6 |
| Marche (Center) | 1604.8 | 43.1 | 0.8 |
| Toscana (Center) | 1558.5 | 51.5 | 1.2 |
| Abruzzo (South) | 1532.7 | 44.4 | 0.8 |
| Campania (South) | 1448.3 | 45.9 | 1.4 |
| Basilicata (South) | 1308.3 | 42.6 | 0.7 |
| Sardegna (South) | 1228.0 | 42.4 | 0.9 |
| Sicilia (South) | 1190.1 | 42.3 | 1.0 |
| Puglia (South) | 1164.1 | 39.1 | 0.9 |
| Calabria (South) | 1150.1 | 38.3 | 0.9 |
| Molise (South) | 1033.6 | 39.2 | 1.9 |
| Total | 2045.9 | 54.2 | 1.5 |

Note: Value Added is measured in thousands of Euros

5.4 The 'Territorial Database': descriptive statistics and factor analysis

The territorial database includes secondary data, manually collected from different public datasets available at ISTAT (Istituto Nazionale di Statistica), Ministero dello Sviluppo Economico, Banca d'Italia and Eurostat, among others. Territorial variables are used as proxies of different sub-dimensions of territorial capital, in accordance with a critical analysis of the previous theoretical and empirical works, as described in Chapter 4 (Table 4.1). Available data cover the period from 2001 to 2012. Tables 5.4 to 5.6 present statistics on regional variables (average values 2001-2012).

INTANGIBLE CAPITAL

Starting with *human capital*, the sub-dimension of *cognitivity* is measured here by using four different indicators to capture the availability of intellectual knowledge and technical skills existing at regional level. The first indicator is the 'percentage of population aged 25-64 with tertiary education attainment'. Table 5.4 shows how Lazio, Liguria and Emilia Romagna have the highest percentage of people with tertiary education, while Sardegna, Val D'Aosta and Puglia have the lowest. Regional differences in terms of education can be due to the quality of public education supply, which has been consolidated for many years, particularly in central and Northern Italy (BES, 2014)³⁰ and in more industrialized areas (excluding northern mountainous areas such as Val D'Aosta).

The second indicator is the 'percentage of households using the internet', the highest share of which is located in Lombardia, Trentino Alto Adige, while Puglia and Sicilia present the lowest value. This can be due to the slower diffusion of technologies in less industrialized and peripheral areas (Grimes, 2003). One of the most important reasons for such inequality arises from the significant barriers to low-cost high-speed internet access in peripheral areas (Grimes, 2003).

The third indicator is the 'number of graduates in science and technology subjects (per 100 people)'. The highest number belongs to Lazio, Emilia Romagna and Toscana, while Basilicata, Molise and Val D'Aosta present the lowest numbers. The low performance of Val D'Aosta among Northern regions is explained in a document

³⁰ http://www.istat.it/it/files/2014/06/02_Istruzione-formazione-Bes2014-2.pdf accessed on December 3rd, 2015; h: 12.31 pm

published by the regional government in 2013³¹ and justified by the fact that technological activities are usually concentrated in more populated regions, driven by technological sectors, where large firms are located.

The last indicator used as a proxy of cognitivity is represented by the 'percentage of people employed in R&D'. The highest percentage is located in Lazio, Piemonte and Emilia Romagna, while Puglia, Molise and Calabria have the lowest percentage. In effect, more than 75% of total expenditure in R&D is concentrated in Northern regions and Lazio³² (BES, 2015) and large firms, mainly located in the North, tend to invest more in R&D than small ones. Numerous studies have also found that R&D tends to be concentrated in large urban areas, and plays a more vital role in creating innovation in central than in peripheral areas (Shefer and Frenkel, 2005).

The second sub-dimension of human capital is *creativity*. Three different indicators are used here to capture the technological, cultural and economic creativity, at regional level. Table 5.4 presents average values. The first indicator is represented by the 'number of patents registered at the European Patent Office (EPO) per 100 people'. Although it is acknowledged that not all innovation is patentable, patent production can capture the general technological/innovation capability existing at regional level. Emilia Romagna and Lombardia are the regions that produce the highest number of patents, while Sardegna, Calabria and Molise have the lowest performance, stressing the divide between Northern and Southern regions in terms of innovation.³³

With respect to the artistic and cultural creativity existing at regional level, this has been measured by the 'number of tickets sold for artistic performance (theatre and music performances) per resident population'. Lazio, Friuli Venezia Giulia and Emilia Romagna show the highest propensity to create artistic events, while Basilicata, Calabria and Molise show the lowest.

³¹ www.regione.vda.it/allegato.aspx?pk=39219 accessed on December 3rd, 2015; h: 12.31 pm

³² <http://www.istat.it/it/files/2015/12/11-Ricerca-innovazione-Bes2015.pdf> accessed on March 4th, 2015 h 1.00 pm

³³ Surprisingly, Lazio, which owns the highest percentage of employees in R&D, does not appear among the biggest producers of patents; this could be explained by the fact that figures related to employees in R&D include researchers in universities and public companies whose research activity do not always translate into benefits for firms in the private sector. Moreover, while R&D is a determinant of innovation, not all R&D investments lead to new products that are then patented.

Lastly, to evaluate the economic creativity, this study uses the 'new companies per resident population' per 10,000 people. Lazio, Toscana and Abruzzo are the regions that create the highest number of firms per capita, while Sicilia, Friuli Venezia Giulia and Basilicata have low performance. Although these indicators can be also influenced by other aspects which are not directly related to the latent phenomena that this study wants to measure (for instance, the percentage of new firms influenced by the amount of incentives given by local governments), they are still useful to capture the regional capability to innovate, produce artistic events and create new economic activities. Thus, as explained in Chapter 3, the above subcomponents of cognitivity and creativity are expected to be positively related to firms' productivity.

Table 5.4: Human Capital – Proxies for regional cognitivity and creativity (average 2001-2012)

| Cognitivity | | | | | Creativity | | |
|-------------------------------|-----------------------------------|------------------|--|--------------------------|--|--|--|
| Region | Tertiary education | Households using | Graduates in science | Employees in | Patents Registered at the European Patent Office (EPO) per 100 of people | Diffusion of Theatre and Music Performances (tickets sold/population) | New Companies/Resident Population (10 000 people) |
| | (levels 5 and 6) (% of people) | | | | | | |
| | | internet (%) | and technology subjects (% of people) | R&D per 100 of people | | | |
| Lombardia (North) | 13.6 | 45.1 | 0.15 | 0.40 | 1.37 | 63.2 | 52.2 |
| Trentino Alto Adige (North) | 11.9 | 44.5 | 0.08 | 0.35 | 0.77 | 68.0 | 41.0 |
| Lazio (Center) | 16.9 | 44.3 | 0.18 | 0.58 | 0.34 | 87.2 | 60.8 |
| Veneto (North) | 11.6 | 43.0 | 0.12 | 0.33 | 1.16 | 63.1 | 44.5 |
| Marche (Center) | 14.7 | 42.7 | 0.13 | 0.25 | 0.72 | 58.9 | 50.3 |
| Toscana (Center) | 13.7 | 42.1 | 0.16 | 0.36 | 0.73 | 65.8 | 57.1 |
| Emilia Romagna (North) | 15.1 | 42.1 | 0.17 | 0.48 | 1.60 | 70.2 | 52.4 |
| Sardegna (South) | 10.7 | 41.6 | 0.09 | 0.18 | 0.10 | 39.7 | 45.1 |
| Friuli Venezia Giulia (North) | 12.5 | 41.5 | 0.14 | 0.42 | 1.19 | 74.6 | 39.5 |
| Umbria (Center) | 14.5 | 40.8 | 0.12 | 0.29 | 0.38 | 55.5 | 48.5 |
| Abruzzo (South) | 14.3 | 40.2 | 0.11 | 0.25 | 0.35 | 37.5 | 54.1 |
| Val D'Aosta (North) | 10.6 | 39.8 | 0.01 | 0.21 | 0.60 | 49.2 | 51.5 |
| Piemonte (North) | 12.1 | 38.4 | 0.14 | 0.48 | 1.17 | 51.9 | 48.2 |
| Basilicata (South) | 11.0 | 36.5 | 0.06 | 0.16 | 0.11 | 20.7 | 37.7 |
| Liguria (North) | 15.4 | 36.1 | 0.12 | 0.37 | 0.64 | 58.1 | 51.0 |
| Molise (South) | 13.3 | 35.9 | 0.02 | 0.15 | 0.05 | 12.0 | 43.8 |
| Campania (South) | 11.2 | 35.8 | 0.13 | 0.22 | 0.14 | 32.3 | 48.0 |
| Calabria (South) | 12.4 | 32.6 | 0.11 | 0.09 | 0.06 | 19.6 | 42.9 |
| Puglia (South) | 10.5 | 32.1 | 0.08 | 0.15 | 0.12 | 29.3 | 43.7 |
| Sicilia (South) | 10.9 | 30.8 | 0.09 | 0.17 | 0.12 | 37.7 | 40.4 |
| Total | 12.8 | 39.3 | 0.11 | 0.29 | 0.59 | 49.7 | 47.6 |

With respect to *social capital*, Table 5.5 shows average values of the selected proxies. The first sub-dimension is *civic sense* (Guiso *et al.*, 2010), measured by the ‘number of people (aged 14 and over) who carried out some voluntary activity in the 12 months before data were collected (percentage values)’. The second sub-dimension is the level of *trust* existing at regional level; this is measured by the ‘number of people aged 14 and over that, at least once, have given money to associations’. Lastly, the *relations and cooperation capabilities* are measured by the ‘percentage of people aged 14 carrying out social activity (Meetings of cultural, recreational or associations of other type) in the 12 months before data are collected (percentage values)’. This proxy is able to capture only the relational capability existing among people within regions, but not between the region and the rest of the world. By looking at the distribution of social capital proxies (Table 5.5), Trentino Alto Adige is the region with the highest level of civic sense, trust and relational capability, while regions in the South such as Puglia, Campania, Calabria and Sicilia are the lowest. In line with what has been discussed in Chapter 3, these proxies are expected to be positively related with firms’ productivity.

Cultural Capital (Throsby, 1999: 7) includes dialects, traditions, beliefs and so on. Considering the scarcity of data to measure these slippery concepts, this analysis only considers the ‘beliefs’ component, using the ‘percentage of religious people (people aged over 6 who attend churches and other religious institutions, at least once a week)’. Table 5.5 shows that regions in the South seem to be more attached to religious values, as the share of population attending religious places regularly is higher compared with Northern regions. As discussed in Chapter 3, from one side, cultural capital is a valuable territorial resource and can be a source of competitive advantages for firms, while from the other side, it may represent an internal friction to openness, innovation and change; thus, the effect of this proxy is difficult to predict a priori.

Lastly, formal *Institutional Capital* has been proxied by using the ‘number of violent crimes per 10,000 people’. This proxy includes murders, infanticide, malicious injuries, sexual assault, kidnapping, attacks and robberies; it is able to capture a limited aspect of formal institutions related to the rule of law. Table 5.5 shows that, in terms of crimes, Campania, Piemonte and Emilia Romagna present the highest number of crimes, while Friuli Venezia Giulia, Basilicata and Molise present the lowest.

Table 5.5: Proxies for Social Capital (Trust, Relations, Civic Sense), Cultural and Institutional capital (average 2001-2012)

| Region | Social Capital | | | Cultural Capital | Formal Institutions |
|-------------------------------|---|--|---|----------------------|---|
| | Money given to associations (% of people >14 years that have donated) | % People Carrying out Social Activity (Meetings of cultural, recreational or associations of other type) | Free-of-charge activity for volunteer groups or associations(%) | Religious People (%) | N.of violent crimes (per 10.000 people) |
| Trentino Alto Adige (North) | 32.6 | 22.9 | 20.9 | 36.0 | 11.7 |
| Emilia Romagna (North) | 24.4 | 10.0 | 11.0 | 23.5 | 18.0 |
| Toscana (Center) | 23.5 | 8.8 | 9.8 | 22.0 | 16.7 |
| Lombardia (North) | 22.1 | 9.8 | 11.9 | 35.2 | 17.6 |
| Veneto (North) | 21.3 | 12.8 | 13.6 | 37.5 | 12.8 |
| Friuli Venezia Giulia (North) | 20.3 | 13.3 | 11.6 | 24.9 | 11.7 |
| Val D'Aosta (North) | 19.6 | 10.9 | 11.5 | 23.6 | 14.6 |
| Sardegna (South) | 19.4 | 9.3 | 8.3 | 27.7 | 14.2 |
| Marche (Center) | 18.2 | 8.9 | 8.6 | 38.7 | 12.7 |
| Piemonte (North) | 17.6 | 9.8 | 10.0 | 30.2 | 19.8 |
| Liguria (North) | 17.4 | 7.8 | 7.9 | 23.6 | 17.1 |
| Umbria (Center) | 17.1 | 9.5 | 8.1 | 29.9 | 12.5 |
| Basilicata (South) | 14.1 | 8.0 | 7.7 | 36.1 | 11.2 |
| Lazio (Center) | 12.8 | 7.4 | 6.2 | 27.2 | 17.9 |
| Abruzzo (South) | 11.8 | 7.6 | 6.2 | 33.6 | 14.8 |
| Molise (South) | 10.6 | 8.0 | 6.1 | 38.7 | 10.4 |
| Puglia (South) | 10.0 | 6.6 | 5.8 | 42.3 | 16.3 |
| Calabria (South) | 9.8 | 6.4 | 5.5 | 37.9 | 14.3 |
| Campania (South) | 8.2 | 5.1 | 4.9 | 42.8 | 32.4 |
| Sicilia (South) | 6.8 | 6.1 | 5.1 | 40.1 | 17.8 |
| Total | 16.9 | 9.5 | 9.0 | 32.6 | 15.7 |

TANGIBLE CAPITAL

Starting with *natural capital*, Italy is considered a country with limited endowment of natural resources such as oil or gas (Porter, 1990); thus, the analysis focuses on the presence of the *natural environment* existing within regions, without taking into account other dimensions of natural capital such as the presence of renewable or non-renewable resources. The proxy used is represented by the 'presence of important natural sites' defined as the percentage of 'Natural Surfaces 2000 network'³⁴ divided by the regional surface. Table 5.6 shows that Val D'Aosta, Campania, Liguria, Puglia and Abruzzo have the highest percentage of important natural sites, while Lazio, Calabria and Basilicata have the lowest.

Another tangible dimension of territorial capital is represented by physical capital; the sub-dimension related to the level of *public infrastructure* available within regions is measured by the 'length of railways (km) divided by the terrestrial area (km2) (percentage values)'. This indicator does not give us any information about the quality of infrastructure and this explains why Southern regions such as Campania or Sicilia, typically well known for infrastructure shortage, have a high position in the regional classification (see Table 5.6).³⁵

The third dimension of tangible territorial capital is the *artistic capital* that is proxied by the 'number of visitors of public institutes of antiquities and art'. Visitors are counted by considering the number of tickets sold for institutes and museums (museums, galleries, monuments and excavations).³⁶ Lazio, Campania, Toscana and Sicilia sell the highest number of tickets for public institutes of antiquities and art, while Liguria, Molise and Trentino Alto Adige sell the lowest.

The last tangible dimension of territorial capital considered in this study is the *financial capital*; the selected indicator is 'Bank Credit as % of GDP' which captures the

³⁴ Natural Surfaces 2000 network have been established following the enactment of Directive 92/43/EEC "Habitat" and it is the main instrument of EU policy for the conservation of biodiversity.

³⁵ Despite the Infrastructure Index created by Istituto Tagliacarne (<http://www.tagliacarne.it/>) which includes roads, railroads, ports, airports, energy, information and communication technology (ICT), banking, education, healthcare and leisure facilities would have been more appropriate to capture the endowment of infrastructure; this indicator does not allow comparisons among regions, over time, in absolute terms, but only in relative terms. Moreover, the infrastructure index does not take into account the quality and accessibility of regional infrastructure.

³⁶ In the case of Sicily, which adopts a different methodology to calculate the total number of visitors, non-paying visitors are also considered.

private dimensions of finance. The amount of credit given to the private sector has its highest values in Northern regions such as Lombardia, Trentino Alto Adige and Emilia Romagna, while Southern regions, particularly Puglia, Campania and Sicilia, have the lowest values. In line with Chapter 3, tangible dimensions of territorial capital are expected to be valuable resources for regions and therefore positively correlated to firm productivity.

Table 5.6: Proxies for Natural Capital, Artistic capital, Infrastructure and financial capital proxies (average 2001-2012)

| Region | Natural Capital | Artistic Capital | Infrastructure | Financial Capital |
|-------------------------------|-----------------------------|---|--|-------------------------|
| | Important natural sites (%) | Visitors public institutes of antiquities and art | Railways (Km)/Terrestrial Area (km2) (%) | Bank Credit As % of GDP |
| Val D'Aosta (North) | 29.87 | n/a | 2.49 | 39.69 |
| Campania (South) | 26.94 | 6,216,712 | 7.75 | 31.99 |
| Liguria (North) | 26.53 | 87,629 | 9.19 | 39.04 |
| Puglia (South) | 24.00 | 467,481 | 4.26 | 32.36 |
| Abruzzo (South) | 23.54 | 165,958 | 4.86 | 47.28 |
| Molise (South) | 22.42 | 48,339 | 6.18 | 32.96 |
| Trentino Alto Adige (North) | 21.79 | 425 | 1.11 | 73.62 |
| Veneto (North) | 19.76 | 928,180 | 6.37 | 63.52 |
| Sardegna (South) | 18.45 | 277,909 | 1.80 | 35.59 |
| Friuli Venezia Giulia (North) | 16.45 | 3,292,147 | 5.95 | 48.03 |
| Sicilia (South) | 15.60 | 4,037,658 | 5.40 | 29.35 |
| Umbria (Center) | 12.70 | 260,265 | 4.36 | 53.86 |
| Toscana (Center) | 12.70 | 5,602,647 | 6.32 | 57.02 |
| Marche (Center) | 10.34 | 480,738 | 4.01 | 58.78 |
| Emilia Romagna (North) | 9.65 | 883,016 | 5.12 | 67.99 |
| Piemonte (North) | 9.54 | 957,339 | 7.32 | 46.85 |
| Lombardia (North) | 9.05 | 1,327,280 | 6.75 | 75.79 |
| Lazio (Center) | 8.30 | 12,143,885 | 6.92 | 57.94 |
| Calabria (South) | 5.73 | 291,074 | 5.68 | 23.58 |
| Basilicata (South) | 5.64 | 237,985 | 3.55 | 34.00 |
| Total | 16.45 | 2,019,992 | 5.27 | 47.46 |

5.4.1 Reducing the number of territorial variables: Factor Analysis (FA)

The inclusion of a wide range of variables into the analytical model can make the identification of the role of each individual factor particularly challenging due to multicollinearity issues. For example, proxies for different sub-dimensions of territorial capital capture different aspects of the same relative territorial dimension (such as relational capital and civic capital cover different angles of social capital); secondly, territorial capital dimensions, particularly among intangibles, are likely to be correlated (for example, social capital and culture; Fukuyama, 1995).

To address this issue, this study implements factor analysis (FA) as this compresses the number of variables reducing the problem of multicollinearity.³⁷ In fact, the existence of clusters of correlation coefficients between variables suggests that those variables could be measuring aspects of the same underlying dimensions (Field, 2009). This study carries out FA for groups of intangible variables according to an 'exploratory strategy analysis'.³⁸ Each territorial variable is observed for a period that from 2001 to 2012 (20 regions*12years).

³⁷ The FA reveals how different variables change in relation to each other and how they are associated. This technique is similar to the Principal Component Analysis but while PCA is simply based on linear combinations, FA is based on a special model and assumes that variance can be decomposed into that accounted for by common and unique factors (OECD, 2008). Before performing FA, it is important to check if data are suitable for this type of analysis. The first issue is the problem of partial correlations; in fact, variables with large partial correlations share variance with one variable but not with the remaining variables. Kaiser's Measure Olkin of Sampling Adequacy (KMO) shows how severe this problem for each variable is. It represents the ratio of the squared correlation between variables to the squared partial correlations between variables (Field, 2009) and it is 0.73 in this case. The smaller the KMO, the greater the problem; a KMO above 0.5 is widely accepted (Field, 2009). The second issue consists in estimating internal consistency of items in the model. The Cronbach Coefficient Alpha (C-alpha) is the most common estimate of internal consistency (OECD, 2008). It is not a statistical test but a coefficient of reliability based on the correlation between individual indicators; thus, if the correlation is high, there is evidence that the individual indicators are measuring the same underlying construct. In our case, the C-alpha is 0.725; therefore, there is high reliability, and individual indicators measure the latent phenomenon well (OECD, 2008). Lastly, the Bartlett test of Sphericity is used to test the null hypothesis that individual indicators, in a correlation matrix, are uncorrelated (OECD, 2008); this test rejected the null.

³⁸ This approach differs from the 'Confirmatory Factor Analysis' that aims to test the relationship between variables and their underlying latent construct. Although, in this case, there is a theory regarding the correlation among variables (e.g., we would expect that different sub-dimensions of social capital, such as trust and civic sense, are correlated), the aim is not to test whether this theory appropriately describes the observed intercorrelations, but simply to reduce the set of variables by combining them within homogenous categories of territorial capital, which share the same constructs.

Table 5.7 presents factor loadings which indicate how well each variable fits to each factor, and they can be thought of as the Pearson correlation between a factor and a variable (Field, 2009). It is possible to distinguish three main factors accounting for 94% of the variation of the data: the first factor (*Cre*) includes variables that identify the level of 'regional creativity' existing at regional level; in particular, this captures the 'technological creativity' represented by patents, people employed in R&D, graduates in science and technology, while only marginally representing the artistic and economic creativity; moreover, it is possible to notice the percentage of religious people is negatively related to the level of creativity existing at regional level. The second factor (*SocCap*) identifies the 'regional social capital' and in particular relations, trust and civic sense. Moreover, the number of violent crimes is negative related to the endowment of social capital at regional level. Lastly, the third factor (*Cog*) combines variables that identify the level of 'regional cognitivity/intellectual capital' represented by the % of people with tertiary education, and % of households using the internet.

With regard to the tangible components of territorial capital, (Natural Capital, Artistic Capital, Infrastructure and Finance), the level of correlation among variables is low and the Kaiser Meyer Olkin measure of sample adequacy results in less than 0.5; therefore, the FA does not seem appropriate to reduce the number of variables that will be included individually into the final model.

Table 5.7: Factor Analysis (Factor loadings higher than 0.43 in bold)

| Variable | Cre Factor1: Creativity | SocCap Factor2: Civic Sense/Trust/Cooperation | Cog Factor3: Cognitivity | Uniqueness |
|---|-------------------------------|---|--------------------------------|------------|
| Patents Registered (% of people) | 0.63 | 0.43 | -0.13 | 0.35 |
| New Companies/Population | 0.68 | -0.26 | -0.26 | 0.59 |
| Tickets sold for artistic performance/population*100 | 0.72 | 0.32 | 0.13 | 0.17 |
| N. Graduates in science and technology subjects (total)/Resident Population (%) | 0.63 | -0.21 | 0.38 | 0.33 |
| People empl.in R&D(per 1000 of people) | 0.66 | 0.15 | 0.35 | 0.20 |
| Religious People (%) | -0.52 | -0.14 | -0.14 | 0.60 |
| First and second stage of tertiary education(%) | 0.22 | -0.19 | 0.77 | 0.26 |
| Households using internet (%) | -0.10 | 0.19 | 0.88 | 0.21 |
| Free-of-charge activity for volunteer groups or associations(%) | 0.03 | 0.96 | 0.04 | 0.06 |
| Money given to associations | 0.28 | 0.83 | 0.00 | 0.13 |
| % People Carrying out Social Activity (Meetings of cultural, recreational or associations of other type | -0.10 | 0.95 | 0.03 | 0.12 |
| Violent crimes (per 10.000 of people) | 0.22 | -0.43 | 0.30 | 0.71 |

Notes:

Kaiser Rule applied (Eigenvalues>1): 94% of the variance explained

Kaiser-Meyer-Olkin measure

0.7248

Bartlett test of sphericity

P-value = 0.00 Chi-square = 2548

Oblique rotation applied. When performing factor analysis, most of the time variables have high loadings on the most important factors and smaller loadings on other factors making interpretation difficult; therefore in the majority of the case rotations techniques are used to discriminate between factors (Field, 2009). Rotation of components axes allows variables to maximize their loadings (which indicate how well each variable fits to each factor and they can be thought of as the Pearson correlation between a factor and a variable) to only one component. Thus, after rotation, loadings are maximized to one factor and minimized on the remaining factors. The choice of rotation depends on whether there is a good theoretical reason to suppose that factors are correlated or not; If we expect that factors are correlated, as in the case of intangible components of territorial capital, oblique rotation is suggested (Fagerberg and Srholec, 2008; Field, 2009)

5.5 Data Analysis

The empirical investigation starts with the estimation of the Cobb-Douglas production function at firm level to derive firms' TFP. The analysis compares different panel data methods, including pooled Ordinary Least Squared (OLS), fixed effect, and Levinsohn and Petrin to take into account the heterogeneity and endogeneity issues which are typical of the production function estimation at firm level. The derived measure of TFP is then regressed on different tangible and intangible dimensions of territorial capital.

5.5.1 The Estimation of the Cobb-Douglas production function - Ordinary Least Squared (OLS)

The first set of estimations consists of a pooled OLS model that includes a number of control variables. Starting from equation (2), described in section 5.2, the benchmark Cobb-Douglas model is estimated as follows:

$$y_{ijt} = tfp_{ijt} + \alpha_1 tk_{ijt} + \alpha_2 ik_{ijt} + \alpha_3 l_{ijt} + \gamma_{it} + controls \quad (2a)$$

Control variables include time, geographical, sector dummies, firm size³⁹ and age. Robust standard errors clustered at firm level are used to take into account of heteroscedasticity and serial correlations problems.⁴⁰

Table 5.8 shows the first set of results. Column (1) presents a standard production function, considering tangible capital and labour only. The function presents constant return of scale. Column (2) includes intangible assets as an additional factor of production; all input coefficients are significant and positively related to value added and their size is consistent with existing studies in the manufacturing sector (Marrocu *et al.*, 2012; Lasagni *et al.*, 2015). Columns

³⁹ Although micro firms are excluded from the analysis, dummy 'micro' has been included as it is possible that some firms have less than 10 employees in some years, before or after 2008, as shown in Table 5.2.

⁴⁰ Such robust standard errors can deal with a collection of concerns about failure to meet regression assumptions, minor problems about normality, heteroscedasticity, or some observations that exhibit large residuals, leverage or influence. The STATA regress command includes a robust option for estimating the standard errors using the Huber-White sandwich estimators

<http://www.ats.ucla.edu/stat/stata/webbooks/reg/chapter4/statareg4.htm>

(3) to (7) include additional controls. Time dummy coefficients show that value added started declining from 2008, corresponding with the beginning of the financial crisis. Value added is higher for firms located in the North, the benchmark group for the regional dummies; age is also positive and significant indicating the effect of learning by doing on productivity (Jovanovic and Nyarko, 1994). Moreover, although most of the controls are statistically significant, in comparing column (2) with results presented in the other columns, the estimated elasticities are not greatly affected by the inclusion of dummy variables.

Table 5.8: Cobb-Douglas Production function coefficients – Pooled OLS for the entire sample

| VARIABLES | (1) Value Added | (2) Value Added | (3) Value Added | (4) Value Added | (5) Value Added | (6) Value Added | (7) Value Added | (8) Value Added |
|--------------------|-----------------------|------------------------|------------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|
| Tangible Capital | 0.153*** (0.00129) | 0.140*** (0.00137) | 0.138*** (0.00136) | 0.139*** (0.00137) | 0.142*** (0.00136) | 0.142*** (0.00136) | 0.134*** (0.00140) | 0.130*** (0.00139) |
| Labour | 0.891*** (0.00237) | 0.849*** (0.00256) | 0.845*** (0.00254) | 0.838*** (0.00251) | 0.827*** (0.00249) | 0.810*** (0.00375) | 0.804*** (0.00374) | 0.812*** (0.00385) |
| Intangible Capital | | 0.0580*** (0.00110) | 0.0574*** (0.00110) | 0.0566*** (0.00105) | 0.0550*** (0.00104) | 0.0551*** (0.00104) | 0.0584*** (0.00105) | 0.0602*** (0.00109) |
| Year 2005 | | | -0.000601 (0.00284) | 0.00132 (0.00280) | 0.00340 (0.00277) | 0.00330 (0.00277) | 0.00207 (0.00275) | 0.000425 (0.00280) |
| Year 2006 | | | 0.0221*** (0.00304) | 0.0317*** (0.00298) | 0.0355*** (0.00295) | 0.0356*** (0.00295) | 0.0343*** (0.00294) | 0.0263*** (0.00299) |
| Year 2007 | | | 0.0207*** (0.00325) | 0.0320*** (0.00318) | 0.0371*** (0.00315) | 0.0371*** (0.00315) | 0.0352*** (0.00314) | 0.0254*** (0.00321) |
| Year 2008 | | | -0.238*** (0.00361) | -0.210*** (0.00349) | -0.197*** (0.00344) | -0.199*** (0.00353) | -0.196*** (0.00349) | -0.223*** (0.00361) |
| Year 2009 | | | -0.197*** (0.00353) | -0.177*** (0.00345) | -0.170*** (0.00342) | -0.170*** (0.00343) | -0.174*** (0.00342) | -0.192*** (0.00350) |
| Year 2010 | | | -0.109*** (0.00358) | -0.0925*** (0.00350) | -0.0871*** (0.00346) | -0.0871*** (0.00347) | -0.0965*** (0.00349) | -0.111*** (0.00356) |
| Year 2011 | | | -0.155*** (0.00349) | -0.128*** (0.00341) | -0.120*** (0.00337) | -0.120*** (0.00337) | -0.132*** (0.00342) | -0.157*** (0.00350) |
| Year 2012 | | | -0.200*** (0.00366) | -0.173*** (0.00358) | -0.167*** (0.00354) | -0.166*** (0.00354) | -0.183*** (0.00361) | -0.208*** (0.00370) |
| Year 2013 | | | -0.153*** (0.00373) | -0.130*** (0.00366) | -0.130*** (0.00362) | -0.130*** (0.00363) | -0.151*** (0.00373) | -0.174*** (0.00381) |
| Sector | - | - | - | Yes | Yes | Yes | Yes | - |
| Center | | | | | -0.121*** (0.00486) | -0.121*** (0.00486) | -0.115*** (0.00486) | -0.139*** (0.00510) |
| South | | | | | -0.299*** (0.00506) | -0.299*** (0.00506) | -0.280*** (0.00509) | -0.310*** (0.00514) |
| Large | | | | | | 0.0101 (0.0114) | 0.0237** (0.0114) | 0.00569 (0.0118) |
| Small | | | | | | -0.0410*** (0.00648) | -0.0401*** (0.00648) | -0.0342*** (0.00670) |
| Micro | | | | | | -0.0715*** (0.00962) | -0.0624*** (0.00959) | -0.0725*** (0.00998) |
| age | | | | | | | 0.00370*** (0.000142) | 0.00408*** (0.000146) |
| Costant | 3.183*** (0.00676) | 3.196*** (0.00705) | 3.339*** (0.00762) | 3.068*** (0.0233) | 3.160*** (0.0232) | 3.250*** (0.0270) | 3.239*** (0.0268) | 3.506*** (0.0161) |
| Observations | 621,766 | 538,936 | 538,936 | 538,936 | 538,936 | 538,936 | 538,672 | 538,672 |
| R-squared | 0.751 | 0.765 | 0.770 | 0.787 | 0.793 | 0.793 | 0.795 | 0.779 |

Robust standard errors in parentheses (Firm level)

*** p<0.01, ** p<0.05, * p<0.1

CSR Test: F(1, 85949) = 657.99

Prob > F = 0.0000

A limitation of this model is that the same input elasticities are imposed in different sectors, therefore ignoring technological differences across industries. Thus, following Marrocu *et al.* (2000), Cingano and Schivardi (2004) and allowing for more flexibility, the specification used in column 8 is used for individual

sectors. Table 5.9 presents results at sector level; homogenous sectors such as Education and Human health services, residential care and social work activities (647 firms + 2,981 firms), and Transportation and storage and Other services (4,194 firms+ 918 firms) have been aggregated to reduce the number of sectors with less than 1,000 firms.

All sectors show positive and significant coefficients but with different elasticities as expected. These results are in line with Lasagni *et al.* (2015).⁴¹ A 1% variation in labour has the highest impact on the Manufacturing sector, Information and communication, Scientific Research and other technical activities' value added, while the impact of a 1% variation in tangible and intangible capital has the highest effect on the Accommodation and food services and Arts entertainment and recreation value added, respectively. Regions located in the South show the lowest levels of output in almost every sector.

⁴¹ Lasagni *et al.* (2015) regress firms' revenues on physical capital, employment and raw material expenditure in the manufacturing sector. By using the same expression, adopting firms' sales (instead of value added) as dependent variables and adding raw materials (calculated as the difference between sales and value added) similar coefficients are found.

Table 5.9: Cobb-Douglas Production function coefficients – Pooled OLS by sector

| | Entire Sample | Arts, entertainm ent and recreation (R) | Accommod ation and food service activities (I) | Financial and insurance activities (K) | Manufact uring (C) | Scientific research and other technical activities (M) | Wholesale and retail trade, repair of motor vehicles and motorcycles (G) | Administrat ive and support service activities (N) | Informatio n and communic ation (J) | Education (P) & Human health services, residential care and social work activities | Transportat ion and storage (H) & Other services (S) |
|--------------------|--------------------------|---|---|---|--------------------------|--|--|---|--|---|--|
| VARIABLES | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added |
| Tangible Capital | 0.130*** (0.00139) | 0.166*** (0.0129) | 0.184*** (0.00477) | 0.118*** (0.0177) | 0.121*** (0.00209) | 0.0907*** (0.00636) | 0.112*** (0.00290) | 0.180*** (0.00886) | 0.0898*** (0.00656) | 0.154*** (0.00471) | 0.162*** (0.00462) |
| Labour | 0.812*** (0.00385) | 0.650*** (0.0376) | 0.645*** (0.0152) | 0.715*** (0.0454) | 0.879*** (0.00535) | 0.832*** (0.0181) | 0.808*** (0.00854) | 0.681*** (0.0183) | 0.842*** (0.0185) | 0.722*** (0.0158) | 0.774*** (0.0130) |
| Intangible Capital | 0.0602*** (0.00109) | 0.182*** (0.0140) | 0.0466*** (0.00391) | 0.0788*** (0.0139) | 0.0450*** (0.00132) | 0.0839*** (0.00513) | 0.0495*** (0.00227) | 0.108*** (0.00607) | 0.0949*** (0.00594) | 0.0554*** (0.00408) | 0.0465*** (0.00347) |
| Time | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Size | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Center | -0.139*** (0.00510) | 0.0607 (0.0706) | 0.0264 (0.0175) | -0.106 (0.0785) | -0.121*** (0.00651) | -0.0741*** (0.0241) | -0.186*** (0.0101) | -0.0848*** (0.0300) | -0.0881*** (0.0241) | -0.0146 (0.0232) | -0.122*** (0.0179) |
| South | -0.310*** (0.00514) | -0.108 (0.0687) | -0.0510*** (0.0192) | -0.372*** (0.0869) | -0.286*** (0.00782) | -0.346*** (0.0306) | -0.363*** (0.00947) | -0.215*** (0.0275) | -0.398*** (0.0258) | -0.144*** (0.0206) | -0.193*** (0.0169) |
| age | 0.00408*** (0.000146) | 0.0128*** (0.00207) | 0.0101*** (0.000645) | 0.00412* (0.00238) | 0.00236*** (0.000179) | 0.00404*** (0.000831) | 0.00314*** (0.000309) | 0.00368*** (0.000954) | 0.00151 (0.000964) | 0.00787*** (0.000686) | 0.00441*** (0.000503) |
| Costant | 3.506*** (0.0161) | 3.132*** (0.177) | 3.238*** (0.0753) | 4.201*** (0.204) | 3.350*** (0.0202) | 3.808*** (0.0822) | 3.784*** (0.0339) | 3.532*** (0.0930) | 3.732*** (0.0767) | 3.341*** (0.0733) | 3.430*** (0.0579) |
| Observations | 538,672 | 6,290 | 29,332 | 3,564 | 254,498 | 24,359 | 123,995 | 19,887 | 24,193 | 18,647 | 33,907 |
| R-squared | 0.779 | 0.672 | 0.722 | 0.739 | 0.820 | 0.750 | 0.740 | 0.767 | 0.792 | 0.840 | 0.829 |

Robust standard errors in parentheses (Firm level)

*** p<0.01, ** p<0.05, * p<0.1

Although the estimation of the Cobb-Douglas production function through OLS represents a good starting point for this analysis, it is important to remember that this method presents several methodological issues (Van Beveren, 2010). An important problem is related to the presence of firms' heterogeneity embodied in the error term (Mairesse and Jaumandreu, 2005) and the issue of endogeneity. Hence, as further described in the next section, capital and labour coefficients estimated with OLS could be biased (Levinsohn and Petrin, 2003; Olley and Pakes, 1996).

5.5.2 The issue of endogeneity: estimations with Fixed Effect and Levinshon and Petrin

The most common methodological issue associated with the use of OLS in estimating a firm-level production function is related to the 'simultaneity' bias. The problem of simultaneity has been discussed widely in the literature (see, for example: Griliches and Mairesse, 1995; Eberhardt and Helmers, 2010, among others) and it is caused by the fact that unobserved productivity and input choices are likely to be correlated (Van Beveren, 2010). More specifically, it is argued that firms facing positive or negative productivity shocks, which are observable by the firm but not by the econometricians, tend to respond by varying the input use (Marrocu *et al.*, 2012; Syverson, 2011).

Starting from equation (2a), the error term can be represented as follows:

$$y_{ijt} = tfp_{ijt} + \alpha_1 tk_{ijt} + \alpha_2 ik_{ijt} + \alpha_3 l_{ijt} + \gamma_{it} \quad (2a)$$

$$\gamma_{it} = \Omega_{it}^* + v_{it} \quad (7)$$

Where v_{it} is the measurement error due, for example, to firms' accounting errors (Eberhardt and Helmers, 2010) while Ω_{it}^* represents a productivity shock that can be further split into three different elements:

$$\Omega_{it}^* = \Omega_{it} + \eta_i + \omega_t \quad (7b)$$

The first element Ω_{it} is a state variable and represents the firm specific effect which is entirely attributable to the efficiency of individual firms; this element introduces problems of endogeneity because it is unknown to the

econometrician but known to the firm and therefore, able to affect the firm's decision process (Yasar *et al.*, 2008; Eberhardt and Helmers, 2010). The second element is represented by η_i ; it is the permanent deviation of firm i from the average β_0 , in case firms have permanently higher level of productivity, for example, due to their sector or regional location. Lastly, ω_t represents the productivity shock which is common to all firms and is captured by using time dummies. It is caused, for example, by the introduction of a new technology that affects all firms (Eberhardt and Helmers, 2010). According to different authors (Olley and Pakes, 1996; Levinshon and Petrin, 2003), the problem of simultaneity caused by Ω_{it} might bias the labour coefficients upwards and the capital coefficients downwards, as OLS assumes that the error term is uncorrelated with input choices across both firms and time.

Another problem associated with the use of OLS in estimating a firm-level production is given by the 'selection' bias, resulting from the relationship between productivity shocks and the probability of firms to exit the market (Yasar *et al.*, 2008). If there is a negative productivity shock, firms with larger capital stock are more likely to stay in the market than firms with smaller capital stock.⁴² The negative correlation between probability of exit and productivity will cause the coefficient on the capital variable to be biased downward (Yasar *et al.*, 2008).

In the literature, several methods have been developed to solve endogeneity caused by simultaneity and selection problems. A fixed effect (FE) estimator can solve both problems under the assumption that the unobserved firms' specific productivity is time invariant (Yasar *et al.*, 2008). When a productivity shock is considered time invariant, by using only the within-firm variation in the sample, the FE estimator can overcome the simultaneity bias (Akerberg *et al.*, 2007). Moreover, by assuming that the exit decision is determined by this time invariant firm specific effect, the within estimator also

⁴² Profitability is positively related to K ; firms with higher stock will expect higher profitability at current productivity level and thus will survive lower productivity realizations that cause small firms to exit the market (Yasar *et al.*, 2008)

eliminates the selection bias (Van Beveren, 2010). Table 5.10 presents results based on the FE estimator and shows how coefficients on labour decrease in all sectors compared to the previous table.

However, despite the attractive properties of the FE estimator, this does not perform well in practice (Akerberg *et.al.*, 2007, in Van Beveren, 2010); the assumption of constant productivity differences across firms is unrealistic and usually FE leads to low estimates of the capital coefficients (Van Beveren, 2010; Eberhardt and Helmers, 2010). In effect, these are also lower than coefficients derived with OLS almost in every sector (exceptions are: Financial and insurance activities, Scientific research and other technical activities, and Information and communication).

Table 5.10: Cobb-Douglas Production function coefficients – Fixed Effect for the entire sample of firms and by sector

| | Entire Sample | Arts, entertainment and recreation (R) | Accommoda tion and food service activities (I) | Financial and insurance activities (K) | Manufacteri ng (C) | Scientific research and other technical activities (M) | Wholesale and retail trade, repair of motor vehicles and motorcycles (G) | Administrat ive and support service activities (N) | Information and communicati on (J) | Education (P) & Human health services, residential care and social work activities (Q) | Transportatio n and storage (H) & Other services (S) |
|--------------------|-------------------------|---|---|---|------------------------|--|--|---|---|---|---|
| VARIABLES | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added |
| Tangible Capital | 0.100*** (0.00176) | 0.144*** (0.0250) | 0.135*** (0.00876) | 0.145*** (0.0258) | 0.0921*** (0.00249) | 0.111*** (0.00843) | 0.0854*** (0.00342) | 0.127*** (0.00955) | 0.102*** (0.00686) | 0.0821*** (0.00689) | 0.123*** (0.00691) |
| Labour | 0.477*** (0.00442) | 0.231*** (0.0259) | 0.270*** (0.0111) | 0.420*** (0.0439) | 0.568*** (0.00716) | 0.487*** (0.0177) | 0.489*** (0.00984) | 0.443*** (0.0204) | 0.486*** (0.0166) | 0.378*** (0.0214) | 0.465*** (0.0154) |
| Intangible Capital | 0.0282*** (0.000868) | 0.0768*** (0.0115) | 0.0208*** (0.00395) | 0.0575*** (0.0149) | 0.0214*** (0.00118) | 0.0337*** (0.00437) | 0.0291*** (0.00186) | 0.0370*** (0.00459) | 0.0455*** (0.00414) | 0.0124*** (0.00376) | 0.0261*** (0.00333) |
| Time | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | 4.765*** (0.0161) | 4.532*** (0.159) | 4.352*** (0.0616) | 4.804*** (0.186) | 4.647*** (0.0264) | 4.808*** (0.0588) | 4.805*** (0.0314) | 4.612*** (0.0751) | 4.770*** (0.0544) | 4.958*** (0.0764) | 4.645*** (0.0646) |
| Observations | 538,936 | 6,295 | 29,334 | 3,564 | 254,632 | 24,381 | 124,043 | 19,898 | 24,206 | 18,661 | 33,922 |
| R-squared | 0.233 | 0.134 | 0.137 | 0.280 | 0.237 | 0.289 | 0.246 | 0.316 | 0.321 | 0.266 | 0.287 |
| Number of id_2 | 85,950 | 1,224 | 5,771 | 603 | 38,643 | 3,944 | 19,254 | 3,645 | 3,849 | 3,151 | 5,866 |

Robust standard errors in parentheses (Firm Level)

*** p<0.01, ** p<0.05, * p<0.1

As an alternative to the methods discussed above, some authors tried to solve the endogeneity problem through ‘structural estimators’, based on the assumption that firms’ unobserved productivity can be derived from a structural model of firms’ behaviour (Eberhardt and Helmers, 2010). In particular, Levinsohn and Petrin (2003) use intermediate inputs m_{it} as a proxy of firms’ unobserved productivity and prove that intermediate inputs can solve the problem of simultaneity.⁴³

⁴³ Considering the following log-linear specification of the production function:

$$y_{it} = \alpha_0 p_{it} + \alpha_1 t k_{it} + \alpha_2 l_{it} + \gamma_{it}$$

where $\gamma_{it} = \Omega_{it} + v_{it}$

Levinsohn and Petrin (2003) assumes that m_{it} depends on k_{it} and Ω_{it} ; thus $m_{it} = f(\Omega_{it}, t k_{it})$ can be inverted as $\Omega_{it} = h(m_{it}, t k_{it})$. Plugging unobserved productivity shock into the main equation:

$$y_{it} = \alpha_0 p_{it} + \alpha_1 t k_{it} + \alpha_2 l_{it} + h(m_{it}, t k_{it}) + v_{it} = \alpha_2 l_{it} + \Phi_{it}(m_{it}, t k_{it}) + v_{it}$$

where $\Phi_{it}(m_{it}, t k_{it}) = \alpha_0 p_{it} + \alpha_1 t k_{it} + h(m_{it}, t k_{it})$

The Levinsohn and Petrin method relies on the following assumptions: 1) a monotonicity condition, conditional on capital, intermediate inputs use must increase; 2) the market environment is competitive (input and output prices are not observed at the plant level but if the market is competitive, plants face similar input and output price;s 3) separability of the production technology in the intermediate input used a proxy.

This method presents several advantages compared to the alternative proposed by **Olley and Pakes (1996)**. Olley and Pakes (1996) developed a semi-parametric estimator that solves the simultaneity problem using the firm’s investment decision as proxy for unobserved productivity (Investment can be calculated from $\text{lit} = \text{Kit} + 1 - (1 - \delta) \text{Kit}$, where δ is the depreciation rate and lit is the investment of firms i at time t).

The assumption of this model is that firms experiencing large positive productivity shocks in period t will invest more in period $t+1$; thus, investments are used to control for correlation between input levels and the unobserved firms’ specific productivity. Despite the popularity obtained by the Olley and Pakes’s model, Levinsohn and Petrin (2003) argue that this method is unable to solve the simultaneity problem in many situations. For example, investments may not respond to the entire transmitted shock (Levinsohn and Petrin, 2003) and are costly to adjust. Levinsohn and Petrin (2003) argue that productivity is characterized by two components: a serially correlated component to which investment respond, and a separate productivity shock that is independent over time to which investment will not respond (but to which the choice of input will respond). Moreover, the monotonicity condition of Olley and Pakes (1996) requires that investment is strictly increasing in productivity. Because this implies that only observations with positive investment can be used, if firms report zero investments in a significant number of cases, this can doubt the validity of the monotonicity condition (Van Beveren, 2010). In effect, many firms do not report investment, while they report intermediate inputs. With regard to the selection bias, while Olley and Pakes (1996) incorporate the survival probability in their model, Levinsohn and Petrin (2003) found this technique is not efficient for unbalanced panels (Van Beveren, 2010).

Table 5.11 presents the production function coefficients calculated with the Levinsohn and Petrin (2003) method, both for the entire sample of firms and sector by sector. Intermediate materials are calculated as the difference between sales and value added, while standard errors are bootstrapped following the standard amount of replications (Levinsohn and Petrin, 2003). For the entire sample, in column (1), estimated capital elasticity is 0.08% and labour elasticity 0.7%. Both are statistically significant at the 1% significance level and their size is consistent with existing studies in the manufacturing sector (Marrocu *et al.*, 2012; Lasagni *et al.*, 2015). The coefficient for intangible capital at the firm level is also positive and statistically significant, confirming a priori expectations on the role of intangible assets within the firm.

As expected, results show large variations across industrial sectors (columns 2-11), with fixed capital coefficients ranging between 0.05 (Education and human health services) and 0.14 (Arts, entertainment and recreation), and labour coefficients ranging between 0.35 (Accommodation and food service activities) and 0.71 (Scientific research and other technical activities). The impact of intangible capital is highest in the Information and communication and the Administrative and Scientific sectors, where a 1% increase in intangibles leads to a 0.05% increase in output. The scientific and financial sectors have slightly lower coefficients (0.04%), although the difference is not statistically significant. This set of results highlights the high degree of heterogeneity that characterizes the Italian industry spectrum, an issue that we will discuss later in more detail.

Table 5.11: Cobb-Douglas Production function coefficients - Levinsohn and Petrin for the entire sample of firms and by sector

| | Entire Sample | Arts, entertainm ent and recreation (R) | Accommod ation and food service activities (I) | Financial and insurance activities (K) | Manufactu ring (C) | Scientific research and other technical activities (M) | Wholesale and retail trade, repair of motor vehicles and motorcycle s (G) | Administra tive and support service activities (N) | Informatio n and communic ation (J) | Education (P) & Human health services, residential care and social work activities | Transporta tion and storage (H) & Other services (S) |
|--|-------------------------|---|---|--|-------------------------|---|---|---|--|--|--|
| VARIABLES | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added | Value Added |
| Tangible Capital | 0.0780*** (0.00246) | 0.144*** (0.0379) | 0.128*** (0.0102) | 0.0672*** (0.0231) | 0.0820*** (0.00337) | 0.0598*** (0.0115) | 0.0797*** (0.00569) | 0.0771*** (0.0124) | 0.0631*** (0.00815) | 0.0450*** (0.0104) | 0.0758*** (0.0104) |
| Labour | 0.683*** (0.00268) | 0.521*** (0.0317) | 0.347*** (0.0128) | 0.601*** (0.0364) | 0.639*** (0.00415) | 0.711*** (0.0101) | 0.571*** (0.00599) | 0.692*** (0.00767) | 0.676*** (0.0103) | 0.666*** (0.00827) | 0.697*** (0.00700) |
| Intangible Capital | 0.0217*** (0.000915) | 0.0224** (0.0101) | 0.00373 (0.00364) | 0.0401*** (0.00935) | 0.0161*** (0.000988) | 0.0415*** (0.00549) | 0.0227*** (0.00171) | 0.0460*** (0.00479) | 0.0491*** (0.00501) | 0.00639* (0.00333) | 0.00768** (0.00334) |
| Observations | 533,318 | 5,540 | 29,137 | 3,460 | 253,777 | 23,542 | 123,721 | 19,634 | 23,658 | 17,762 | 33,087 |
| Standard errors in parentheses (Bootstrap) | | | | | | | | | | | |
| *** p<0.01, ** p<0.05, * p<0.1 | | | | | | | | | | | |

While labour coefficients decreased compared to the OLS estimation, capital coefficients also decreased; however, these results are in line with those found by Marrocu et.al. (2012), for a sample of Italian manufacturing firms, suggesting that endogeneity, if present, does not affect estimation of the capital coefficients. As explained in section 5.2, after the determination of input coefficients using three methods OLS, FE and Levinsohn and Petrin methods, TFP is measured as the level of output which is not attributable to inputs (Harris and Moffat, 2011). Table 5.12 shows that, despite the methodological discussion reported in the previous section, correlation among alternative estimates of TFP is very high (Van Biesebroeck, 2003; Van Beveren, 2010).

Table 5.12: Correlation among different measures of TFP

| | TFP(OLS) | TFP(Fixed Effect) | TFP(LevPet) |
|--------------------|----------|-------------------|-------------|
| TFP(OLS) | 1.00 | | |
| TFP_(Fixed Effect) | 0.78 | 1.00 | |
| TFP(LevPet) | 0.95 | 0.89 | 1.00 |

In light of the traditionally poor performance of FE estimators, it would seem that the semi-parametric estimators are to be preferred (Van Beveren, 2010). In particular, this study opted for the Levinsohn and Petrin (2003) method which, as previously explained, also presents several advantages compared to the Olley and Pakes (1996) estimator.

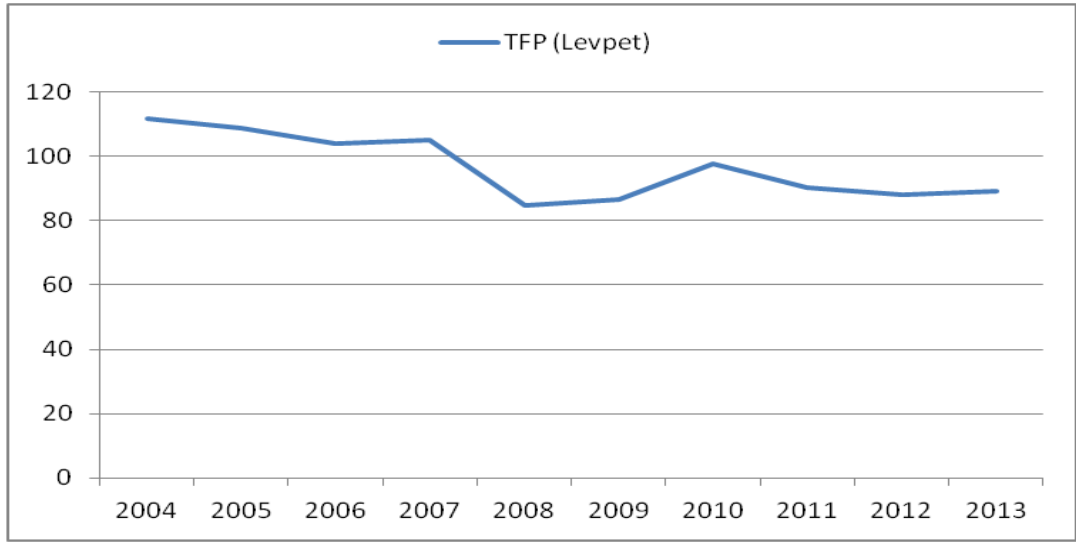
Table 5.13 presents summary statistics of TFP derived with Levinsohn and Petrin (2003). At sector level, Financial and insurance sector, Information and communication, and Scientific research and other technical activities show the higher level of TFP, while Other services, Education, and Accommodation and food service activities show the lowest. In effect, it is widely accepted that TFP differs across sector, and that firms in high technology sectors perform better than others (Aiello *et al.*, 2014). Moreover, Table 5.13 shows, as expected, that regions in the North present higher total factor productivity compared to regions in the South. However, as demonstrated by Aiello *et al.* (2015), sector is more important than location in explaining difference in firms' TFP.

Table 5.13: Total Factor Productivity by sector and region (Levpel method)

| Sectors | TFP (Levpel) |
|--|--------------|
| Financial and insurance activities (K) | 160.83 |
| Information and communication (J) | 128.16 |
| Scientific research and other technical activities (M) | 118.10 |
| Arts, entertainment and recreation (R) | 106.73 |
| Administrative and support service activities (N) | 103.60 |
| Manufacturing (C) | 97.16 |
| Transportation and storage (H) | 93.12 |
| Wholesale and retail trade, repair of motor vehicles and motorcycles (G) | 92.36 |
| Human health services, residential care and social work activities (Q) | 65.49 |
| Other services (S) | 65.13 |
| Education (P) | 62.25 |
| Accommodation and food service activities (I) | 45.51 |
| Total | 94.76 |
| Regions | |
| Lombardia (North) | 115.22 |
| Lazio (Center) | 102.03 |
| Liguria (North) | 99.64 |
| Emilia Romagna (North) | 98.71 |
| Piemonte (North) | 94.95 |
| Trentino Alto Adige (North) | 93.91 |
| Val D'Aosta (North) | 90.88 |
| Veneto (North) | 89.36 |
| Toscana (Center) | 84.31 |
| Friuli Venezia Giulia (North) | 82.66 |
| Umbria (Center) | 76.31 |
| Campania (South) | 74.55 |
| Abruzzo (South) | 74.33 |
| Marche (Center) | 73.02 |
| Sardegna (South) | 70.21 |
| Basilicata (South) | 68.93 |
| Sicilia (South) | 65.27 |
| Puglia (South) | 62.29 |
| Molise (South) | 59.68 |
| Calabria (South) | 58.46 |
| Total | 94.76 |

Lastly, Figure 5.1 shows the TFP behaviour over the years; it is possible to notice a drastic drop of TFP in 2008 by coincidence at the start of the financial crisis, followed by a small increase in 2010.

Figure 5.1: Total Factor Productivity over time (Levpap method)



5.6 The effects of territorial capital on firms' productivity

To measure the effect of territorial capital on productivity, the firms' database has been merged with the territorial variables database, covering a period of 8 years, from 2004 to 2012. The relationship existing between TFP and different territorial resources is estimated using equation (6), reported below in a developed version, specifying the different types of tangible and intangible capital assets included in the analysis and discussed in the previous section:

$$tfp_{ijt} = \beta_0 + \beta_1 Cre_{jt} + \beta_2 SocCap_{jt} + \beta_3 Cog_{jt} + \beta_4 Nat_{jt} + \beta_5 Art_{jt} + \beta_6 Inf_{jt} + \beta_7 Fin_{jt} + u_{ijt} + controls \quad (8)$$

where $i = 1, 2, \dots, n$ firms' individual-level observations, $t = 1, 2, \dots, t$ time series observations, $j = 1, 2, \dots, 20$ Italian regions. *Cre*, *SocCap* and *Cog* are the three components derived from factor analysis, and they represent regional creativity, social capital and cognitive capital, respectively. *Nat* is a proxy for 'natural environment', representing the presence of important natural sites existing within regions; *Art* is a proxy for 'regional artistic capital', measured by the number of visitors of public institutes of antiquities and art. *Inf* is the railway length as percentage of terrestrial area used as a proxy of 'regional infrastructure'; *Fin* measures 'financial capital' (Bank Credit as % of GDP). All variables are transformed in natural logarithms.

The estimation of equation (8) is based on a pooled OLS model under the assumption that all territorial variables are exogenous, following Lasagni *et al.* (2015) and Marrocu *et al.* (2012). As discussed in Fazio and Piacentino (2010), the inclusion of data at the firm level next to macro data at the territorial level can overcome the problem of endogeneity, which is typical of studies that rely on aggregated data only. In this respect, the exogeneity assumption could be particularly strong for some variables such as financial capital and infrastructure. In fact, while it is reasonable to assume that a firm's decision will not affect the regional endowment of natural and artistic capital, it may influence the supply of financial services and infrastructure. However, this simultaneity issue is likely to be less severe in this sample because of the low proportion of large and medium-sized firms (2.2% and 15.2%, respectively), which are more likely to influence the external environment.

Table 5.14 presents the results based on the estimation of (8) imposing homogeneous coefficients across all regions, a constraint that will be relaxed in the next section. Merging firm level data with regional data can produce downward biased standard errors due to the presence of intra-region error correlations. This can lead to an incorrect inference and to spurious findings of statistical significance for the regional variables (Moulton, 1990). Therefore, results are based on standard errors clustered at the firm level (column 1) and at the regional level (column 2) to check the impact of different assumptions on the error correlation.

Table 5.14: The impact of territorial capital on TFP

| VARIABLES | (1) Clustering at firm level | (2) Clustering at regional level |
|---------------|---------------------------------|-------------------------------------|
| <i>Cre</i> | 0.0632*** (0.00561) | 0.0632*** (0.0163) |
| <i>SocCap</i> | 0.0263*** (0.00567) | 0.0263 (0.0179) |
| <i>Cog</i> | 0.00833 (0.00781) | 0.00833 (0.0243) |
| <i>Nat</i> | -0.0152** (0.00632) | -0.0152 (0.0163) |
| <i>Art</i> | -0.00867*** (0.00228) | -0.00867 (0.00801) |
| <i>Fin</i> | 0.156*** (0.0116) | 0.156*** (0.0434) |
| <i>Inf</i> | 0.161*** (0.0130) | 0.161** (0.0585) |
| Observations | 476,563 | 476,563 |
| R-squared | 0.255 | 0.255 |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All specifications include time, sector and regional dummies (North-Center-South), firm's size and firm's age

Results in column 1 (Table 5.14) confirm expectations on the positive impact of territorial capital on firms' productivity. Among regional intangible resources, creativity and social capital have a positive and statistically significant impact, while financial capital and infrastructure are the two forms of tangible capital that positively affect productivity. Unexpectedly, and in contrast with the theory, cognitive capital (formal education and households' use of the internet) is not significant. Although the availability of qualified human capital is central to the successful development of firms (Black and Lynch, 1996; Sianesi and Van Reenen 2003), the presence of technological skills at regional level, the ability to create new enterprises and to innovate, captured by the 'creativity' factor, seems more important than the high number of graduates and internet users. Similar results are found by Mason *et al.* (2012), which shows that positive spillovers from the use of certified high-level skills are confined to industries which make intensive use of university-educated labour. Thus, it is also possible that the impact of cognitive capital for the whole sample cannot be clearly

identified because of cross-sector heterogeneity, an issue that will be addressed below.

Results in column 2 confirm a strong support for the positive role of regional creativity on companies' performance. Given that this indicator is particularly correlated with patent activity, creation of new companies and technical skills, the result implies that companies that operate in a highly innovative environment are more productive. Hence, although regional factors are not the primary source of firms' innovative behaviour, they certainly favour the generation and realization of new ideas (Sternberg and Arndt, 2001).

Results in column 2 also confirm the significance of financial capital and infrastructure on firms' productivity. This supports the importance of a developed financial system in promoting investments and a more efficient allocation of resources as well as the role of infrastructure in lowering transportation costs, facilitating interchanges (Isaksson, 2007).

Results for natural and artistic capital are weaker as the coefficient estimates are insignificant when clustering errors at regional level and, where significant, they predict a negative effect on firms' productivity. These results are consistent with the study by Perucca (2013), where the existence of hard assets, such as monuments, is not associated with higher GDP growth rates at provincial level; hence, the existence of valuable tangible resources, such as natural and artistic capital, is not sufficient to foster either economic development or firms' productivity.

Overall, these results support the hypothesis of the importance of territorial capital for firms' productivity (H1). The positive effect of variables such as creativity, connectivity, finance and infrastructure also support the theoretical approach of Camagni and Capello (2013), who stress the important role of territorial assets, next to the traditional inputs of labour and capital.

5.7 The effects of territorial capital at regional and sector level

In this section, the assumption of homogeneous coefficients is relaxed, allowing the impact of territorial capital to differ across different regional areas and different industries. The Italian territory is parted into North and Centre-South, following the well-known Italian economic divide.⁴⁴ Results are presented in Table 5.15, using clustering at the firm level (columns 1 and 2) and at the regional level (columns 3 and 4). These results highlight several differences in the way territorial capital affect firms' performance.

Table 5.15: The impact of territorial assets TFP: North versus the rest of Italy

| VARIABLES | (1) | (2) | (3) | (4) |
|---------------|-----------------------------------|-------------------------|---------------------------------------|-----------------------|
| | Clustering at firm level North | Center-South | Clustering at regional level North | Center-South |
| <i>Cre</i> | 0.0448*** (0.00774) | 0.0496*** (0.00713) | 0.0448* (0.0242) | 0.0496* (0.0251) |
| <i>SocCap</i> | 5.47e-05 (0.00734) | 0.0620*** (0.00746) | 5.47e-05 (0.0331) | 0.0620*** (0.0130) |
| <i>Cog</i> | 0.0121 (0.00733) | 0.0552*** (0.00853) | 0.0121 (0.0267) | 0.0552** (0.0251) |
| <i>Nat</i> | -0.0250*** (0.00960) | 0.0446*** (0.00958) | -0.0250*** (0.00826) | 0.0446** (0.0155) |
| <i>Art</i> | -0.0244*** (0.00265) | 0.00875*** (0.00297) | -0.0244*** (0.00313) | 0.00875 (0.00634) |
| <i>Fin</i> | 0.216*** (0.0132) | -0.0656*** (0.0201) | 0.216*** (0.0251) | -0.0656 (0.0441) |
| <i>Inf</i> | 0.217*** (0.0231) | 0.0777*** (0.0136) | 0.217*** (0.0608) | 0.0777*** (0.0180) |
| Constant | 4.378*** (0.0860) | 4.378*** (0.0860) | 4.378*** (0.200) | 4.378*** (0.200) |
| Observations | 476,563 | 476,563 | 476,563 | 476,563 |
| R-squared | 0.256 | 0.256 | 0.256 | 0.256 |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All specifications includes time, sector, firms' size dummies and firms' age

For example, creativity, social capital and cognitive capital have a larger impact in the Centre-South, compared to the North of Italy, in both

⁴⁴ I use two categories to ensure a more balanced number of firms between the two groups as 61% of firms are located in the North, 20% in the Centre and 19% in the South.

specifications. This result may appear surprising, given that the North of Italy is the most industrialized and dynamic area in the country with high concentration of innovative activities and social capital. However, regional heterogeneity is high and this could explain the difficulty in finding a clearer impact of intangible regional capital on performance. Another possible interpretation of this result could be that territorial capital, as with other classic forms of capital, is subject to decreasing return to scale (Camagni and Capello (2009, 2013), it is possible that benefits attributable to its increments are stronger in those regions where the mix of territorial capital is lower. This could be particularly true for intangible elements of territorial capital due to the high importance that localized capabilities play upon firm competitiveness (Maskell, 2001).

Another difference between the North and South of Italy is related to the impact of natural and artistic capital. Results for the North indicate a negative impact of these two forms of tangible capital on firm performance; however, in the South of Italy they both contribute to higher TFP levels⁴⁵ highlighting the relevance that these types of capital, provided by 'God' or ancestors, may have in less industrialized regions. The negative coefficient of natural capital in the North possibly depends on the proxy used ('percentage of important natural protected site') which may capture the negative relation between environmental regulations and productivity (Greenstone et al., 2012; Dechezleprêtre and Sato, 2014) in industrialized areas. Artistic capital may also negatively influence firm productivity in the North, for example by imposing limits on construction.

On the contrary, financial capital and infrastructure have a positive impact on the level of TFP in the North of Italy. The impact of infrastructure is also positive in the Centre-South, although it is lower compared to the North, while results for financial capital are weaker compared to the Northern regions. The higher coefficient of infrastructure in the North could possibly capture the effect of public expenditure quality and efficiency in the North. In fact as demonstrated

⁴⁵ Artistic capital is not significant in the South when using robust errors clustered at regional level and 5 years lagged variables

by Del Monte and Papagni (2001), the existence of corruption and bureaucracy which is higher in the Southern regions may contribute to the waste of economic resources, decrease of infrastructure quality, with a lower effect on private production. Therefore benefits related to the increase of public expenditure to build transport infrastructure seem to be higher in the North. The same reasoning can be conducted for the coefficient of financial capital. As explained by Moretti (2014), the positive effect of financial development on productivity is stronger when the socio-institutional environment is better developed as happens in the North.

These findings so far tend to reject the second hypothesis which posits that the impact of territorial capital in the Northern regions is stronger compared to the rest of the country. In fact, in the Centre and South of Italy, all intangible capital components have a stronger effect on firm productivity whilst firms' productivity in the North is significantly affected by increments in financial capital and infrastructure and only marginally by increments in intangible assets. This may suggest that the endowment of a good mix of intangible capital is a precondition to drive and fully enjoy the accumulation of other 'produced' elements of territorial capital, such as infrastructure or financial capital.

Although differences across the North and the Centre-South are important, heterogeneity across firms that operate in different sectors can affect results. This analysis includes a large variety of industrial sectors and the hypothesis that, for example, artistic capital has the same impact in the financial and in the entertainment sector is hard to defend.

The estimations of the production function, previously presented in section 5.5.1, shows that input coefficients vary from sector to sector. Thus, heterogeneity is also expected in the way territorial capital affects productivity at the industry level. This issue is investigated by estimating equation (8) for each industry. Results are presented in Table 5.16.⁴⁶

⁴⁶ Results in Table 5.16 are based on standard errors clustered at regional level, while results based on cluster at firm level are shown in the Appendix A (Table A.2)

These confirm expectations of the importance of different types of territorial capital in different industries. For example, creativity affects productivity in the manufacturing sector, a result consistent with the vast literature on the impact of innovations on productivity (O'Mahony and Vecchi, 2009). In addition, creativity is important for some service sectors, such as wholesale and retail, transport and storage. Unexpectedly, the coefficient is not significant in the information and communication sector. This could be justified by the fact that in the ICT sector, Italy is an adopter of the technology, rather than a producer, and in this perspective, the cognitive capital appears as more valuable assets. Additionally the coefficient is not significant in the arts, entertainment and recreation sector; this could be partially driven by the fact that the variable resulting from the factor analysis reflects much more technological creativity rather than artistic creativity something that instead could have been partially captured by the coefficient of artistic capital.

Cognitive capital, which was not significant in the pooled estimation, is now important in several service industries such as arts, accommodation, financial, education and information technology, while social capital, as expected, has a positive impact in the manufacturing sector. Surprisingly cognitive capital is not significant in the scientific research sector a result that could be perhaps explained by human migration across regions.

Results for tangible assets, on the other hand, highlight some interesting patterns, which confirm a priori expectations on some forms of capital. For example, both the natural and artistic capital are significant in the Accommodation and food sector. This means, for instance, that Italian regions that want to promote the tourism sectors should particularly maintain, valorise and exploit their environmental and artistic resources. In a similar manner, artistic capital positively affects the Arts, entertainment and recreation sector, while the effect is negative or not statistically significant in the remaining sectors. Thus, tangible basic resources such as monuments and museums are essential territorial assets in sectors that are related to hospitality and entertainment. Financial capital and infrastructure are also positive and

statistically significant in several sectors, including manufacturing and some service industries. Surprisingly infrastructure is not significant in the accommodation and food service sector; this unexpected result could be caused by the proxy used which captures the presence of railways at the regional level whereas tourists often travel by plane or motorways. The not significant effect of the financial capital coefficient in the financial sector is more difficult to justify and could be possibly explained by the low number of observations in this sector.

Overall, these results, although possibly affected by the unbalanced number of firms within each region and sector, support hypothesis 3, showing the heterogeneous impact of territorial capital across different industries. However, a limitation of the analysis at sector level is given by the fact that some sectors can be further disaggregated. For example, as previously explained, the manufacturing sector could be disaggregated into a further 24 subsectors. Future research could concentrate on a reduced number of sectors, analysing in more depth what happens using greater levels of disaggregation.

Table 5.16: The impact of territorial capital on TFP: sector analysis

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---------------|--|--|---|-----------------------|--|--|--|--|---|--|
| | Arts, entertainment and recreation (R) | Accommodation and food service activities (I) | Financial and insurance activities (K) | Manufacturing (C) | Scientific research and other technical activities (M) | Wholesale and retail trade, repair of motor vehicles and motorcycles (G) | Administrative and support service activities (N) | Information and communication (J) | Education (P) & Human health services, residential care and social work activities (Q) | Transportation and storage (H) & Other services (S) |
| <i>Cre</i> | -0.0962 (0.0630) | -0.00780 (0.0619) | -0.0493 (0.0480) | 0.0886*** (0.0147) | 0.00558 (0.0620) | 0.0459* (0.0237) | 0.0775** (0.0366) | 0.00544 (0.0352) | 0.0184 (0.0325) | 0.129*** (0.0384) |
| <i>SocCap</i> | 0.0775 (0.0697) | 0.0619 (0.0489) | -0.00415 (0.0858) | 0.0411** (0.0194) | -0.0107 (0.0353) | 0.000686 (0.0251) | 0.0310 (0.0286) | -0.0108 (0.0243) | 0.0280 (0.0327) | 0.0378* (0.0198) |
| <i>Cog</i> | 0.202*** (0.0502) | 0.137*** (0.0326) | 0.175** (0.0629) | -0.0129 (0.0252) | 0.0733 (0.0482) | -0.0439 (0.0435) | 0.0213 (0.0233) | 0.0917*** (0.0218) | 0.102*** (0.0206) | -0.0672 (0.0407) |
| <i>Nat</i> | 0.0396 (0.0549) | 0.0781** (0.0355) | -0.0729 (0.0674) | -0.0163 (0.0157) | -0.129** (0.0517) | -0.0432* (0.0244) | -0.0489 (0.0287) | -0.0600 (0.0354) | -0.0216 (0.0386) | 0.0776** (0.0271) |
| <i>Art</i> | 0.0433** (0.0175) | 0.0371** (0.0147) | -0.0175 (0.0178) | -0.0171* (0.00869) | -0.0270 (0.0176) | -0.00979 (0.00877) | -0.00500 (0.0113) | 0.0160 (0.0110) | 0.00231 (0.0120) | -0.0279** (0.0100) |
| <i>Fin</i> | 0.231** (0.105) | -0.0808 (0.0988) | 0.216 (0.126) | 0.0846** (0.0341) | 0.375*** (0.0940) | 0.346*** (0.0534) | 0.324*** (0.0700) | 0.222*** (0.0579) | 0.0168 (0.0543) | -0.0242 (0.0638) |
| <i>Inf</i> | 0.151 (0.137) | 0.0788 (0.113) | 0.376** (0.169) | 0.164*** (0.0481) | 0.268 (0.175) | 0.160** (0.0638) | 0.246*** (0.0672) | 0.0919 (0.0778) | 0.149*** (0.0499) | 0.194** (0.0771) |
| Constant | 4.155*** (0.747) | 6.160*** (0.457) | 6.404*** (0.911) | 5.705*** (0.209) | 4.996*** (0.630) | 4.973*** (0.272) | 3.966*** (0.357) | 4.754*** (0.387) | 5.192*** (0.367) | 5.653*** (0.310) |
| Observations | 5,341 | 25,342 | 3,196 | 226,318 | 21,591 | 109,530 | 17,654 | 21,336 | 16,327 | 29,928 |
| R-squared | 0.231 | 0.388 | 0.207 | 0.272 | 0.151 | 0.256 | 0.108 | 0.212 | 0.308 | 0.219 |

Robust standard errors in parentheses (cluster at regional level)

*** p<0.01, ** p<0.05, * p<0.1

Control variables include: Year, Firm's Size, Regional Location (North - Center -South), Firm's Age

5.8 Conclusions

This work provides a comprehensive analysis of the positive impact of tangible and intangible territorial capital on firms' TFP. While previous studies have found several determinants of TFP such as education, infrastructure and institutions, among others (Shah, 1992; Black and Lynch, 1996; Lasagni *et al.*, 2015), this research looks at the coexistence of different territorial resources which define the specific territorial peculiarity of regions. The idea is that TFP is not driven by the existence of individual resources, but by a mix of assets endowed at regional level. Unlike previous studies, this analysis focuses not only on the manufacturing sector, which has been widely analyzed in the related literature (Cingano and Schivardi, 2004; Marrocu *et al.*, 2012; Aiello *et al.*, 2014; Lasagni *et al.*, 2015), but also considers the service sector, recognizing the increasing importance of services in modern economies.

Results from the entire sample show that different territorial characteristics, conceptualized in the form of territorial capital, matter for productivity. This is consistent with the theories of new growth and endogenous development that frame the theoretical contribution of this research. In particular, this analysis finds that creativity, measured as the ability to invent new products and process, artistic events and the creation of new firms, is more important than cognitivity, measured in terms of the presence of graduates and internet users. Other intangible territorial assets such as social and cognitive capital also affect productivity, although with different effects, depending on the area and the industrial sector. For example, creativity, social and cognitive capital have a larger impact in the Centre-South regions, compared to the North, a result which suggests that the Centre-South of Italy is catching up with the productivity levels of the most industrialized northern regions.

Tangible territorial assets also have heterogeneous effects. At the aggregate level, the presence of an artistic heritage, natural protected sites and the beauty of landscapes do not positively affect productivity. However, when allowing coefficient estimates to vary across the North and the rest of the country and across industrial sectors, results show a different outcome. For example, the South and Central regions benefit from the endowment of artistic and natural capital, contrary to the North. At sector level, the Arts and entertainment and the Accommodation and food service

activities also benefit from the presence of artistic and natural capital. Conversely, financial capital and infrastructure are important determinants of firms' productivity in most industries, consistent with the results frequently discussed in the financial literature.

Overall, this analysis supports the hypothesis that firms' productivity benefits from the balanced presence of tangible and intangible elements that characterize the region where the firm operates (H1), providing empirical evidence to what has been theorized by Camagni and Capello (2013). In addition, this analysis contributes to the existing evidence by showing possible advantages and disadvantages related to firms' location choices, by explaining how resources in different local contexts may influence firms' productivity in diverse sectors (H3). This can have important policy implications because these results may suggest different strategies of policy interventions at the regional level to boost productivity in target industries.

Results so far tend to partially reject the second hypothesis (H2: *All else being equal, the impact of territorial capital in the Northern regions is stronger compared to the rest of the country*). In fact, this is confirmed only for financial capital and infrastructure which appear, together with creative capital, the main drivers of firm productivity in the North. Conversely, firm productivity in the Centre and South is significantly affected by intangible capital components of territorial capital suggesting that, benefits attributable to increments of intangible resources upon firms' TFP are stronger in those regions where intangible capital is lower.

A limitation of this research is given by the limited availability of data existing at regional level; the use of secondary data can also create problems of measurement validity, as selected proxies do not always perfectly match measures needed. This issue will be addressed further in the next chapter where the qualitative analysis will be used to validate, supplement and reinterpret these econometric findings.

Future quantitative research should focus on expanding the number of proxies to improve the measurement of different dimensions and sub-dimensions of territorial capital. Additionally, it would be very interesting to better explore the interconnections and cause-effect relations existing between diverse types of territorial assets by interacting different territorial proxies such as human, social and institutional capital. It would be also fascinating to construct a composite indicator of

territorial capital and study complementarities among its different components, analyzing how increments of an existing stock of resources are driven by increments in other stocks, also determining a 'suggested' mix of territorial capital needed to push specific industries within specific geographical areas. For instance, it could be interesting to analyze how the presence of different intangible resources facilitates the accumulation of tangible assets such as infrastructure or finance. However, this is a very challenging task as long time series data would need to be available at the local level.

Future research should also focus on the interaction between firms' inputs and regional assets to assess the presence of complementarities. This will answer the question of whether firms' internal choices, in terms of skills and management practices, can promote the firm's ability to take advantage of regional resources, i.e. whether the concept of absorptive capacity, which is usually analyzed in the context of technological innovations, is also valid for the exploitation of a different mix of regional resources.

Chapter 6: The contribution of territorial capital to firm performance in Milan and Palermo: insights from qualitative and mixed method analysis

6.1 Introduction

The aim of this chapter is to achieve a more comprehensive understanding of the role of territorial capital on business performance, by building upon the econometric results with the analysis of semi-structured interviews conducted with a sample of firms' owners/managers. In fact, following Miles *et al.* (2013: 42), qualitative data are important to supplement, validate and reinterpret quantitative data as both "*numbers and words are needed if we are to understand the world*".

The econometric analysis undertaken in Chapter 5 showed that a mix of tangible and intangible regional assets accumulated across regions, named territorial capital, influences the productivity of Italian firms. These valuable assets primarily include the capability to create and innovate, the presence of transport infrastructure and the availability of financial capital.⁴⁷ The analysis also demonstrated that the nature and impact of territorial capital on firms' performance varies across different geographical areas and sectors. For instance, the endowment of infrastructure has a higher importance in the North of Italy, while the presence of natural resources positively contributes to firms' productivity in the Centre-South. At sector level, regional assets such as creativity, social and financial capital have a positive influence on firms operating in the Manufacturing sector, while Accommodation & Food services benefit from the presence of cognitive, artistic and natural capital.

These findings are here explained further and built upon through the analysis of primary qualitative data. More specifically, the qualitative analysis seeks to answer two research questions:

⁴⁷ The presence of social capital is also positive and significant when using robust standard errors at firm level.

Rq2) How do territorial resources influence firms' performance?

Rq3) What territorial resources drive firms' performance across different geographical areas and economic sectors?

The qualitative procedure enables a more detailed enquiry into a number of areas that have not been fully explored by the quantitative method. Firstly, the econometric analysis fails to understand the process through which territorial capital contributes to firms' performance practically. However, the qualitative procedure explains *how* territories influence firms, from the perspective of entrepreneurs themselves. One of the most important strengths of collecting qualitative data is that it gives an insight into "*what real life is like*", revealing reach and holistic information about complexity (Miles *et al.*, 2013: 11).

Secondly, in terms of geographical unit, the econometric analysis did not permit an investigation of what mix of resources drives firms' performance within individual regions. The impact of territorial capital across geographical areas has been investigated by comparing firms located in a heterogeneous group of 12 regions in the South-Centre with those located in the North (8 regions), without understanding what set of resources is the most important to each individual region. Including dissimilar regions such as Val D'Aosta and Lombardia (North) or Sicily and Tuscany (Centre-South) in the same group does not permit a full understanding of the impact of territorial capital at local level. The qualitative procedure overcomes this limitation by studying the different nature and operation of territorial capital within specific local areas, comparing two provinces in the North and South of Italy.

Lastly, there is scope to explore, in more depth, different aspects which have been only partially quantified through the use of proxies. The available secondary data are not always sufficient to examine the heterogeneity and characteristics of territorial capital fully, in particular when investigating the effect of slippery concepts such as culture and institutions that turn in unmeasured variables (Saunders *et al.*, 2007). Conversely, qualitative analysis is better able to capture the multidimensionality and complexity of the investigated phenomenon and considers further aspects which were not quantified or even recognized *a priori*.

This chapter is divided into two parts and structured into six main sections. The first part is dedicated to the qualitative analysis; 6.2 briefly summarizes the qualitative methodology adopted, whilst 6.3 presents the main results explaining *how*, according to the entrepreneurs' view, territorial capital influence firms. More specifically, 6.3.1 and 6.3.2 discuss the main themes identified from interviews in Milan and Palermo, while section 6.3.3 focuses on those aspects which are similar in the two provinces. Building on the main themes identified in each province, section 6.4 explains how territorial capital may become a source of competitive advantage in Milan and Palermo.

The second part of this chapter presents a comparison between the quantitative and qualitative findings at geographical and sector levels (section 6.5); more specifically, the econometric results for the North and Centre-South of Italy are validated, reinterpreted and supplemented with the main interview themes identified in the provinces of Milan (section 6.5.1) and Palermo (section 6.5.2), while 6.5.3 presents the mixed-method analysis at sector level. Finally, 6.6 summarizes and concludes the chapter.

FIRST PART: QUALITATIVE ANALYSIS

6.2 Details on the qualitative method

The qualitative procedure consists of 26 semi-structured interviews with owners/managers from a purposively selected sample of firms. The data collection technique was set out in 4.3.2. In brief, firms were selected following four main criteria: 1) they belong to the category of small and medium enterprises due to their higher degree of embedment in the local context and their importance within the endogenous development tradition (Pyke *et al.*, 2006); 2) they are located in the province of Milan (Lombardia) and Palermo (Sicily) as these geographical areas are very different from each other, both in terms of macroeconomic performance and territorial capital endowment; 3) firms belong to the Accommodation and Food (A&F), Information, Communication Technology (ICT) and Manufacturing (Man.) sectors to compare performance dynamics in traditional and innovative industries; 4) firms

present stable or growing performance in terms of turnover over the last three/five years.

The interview schedule consisted of 22 questions; a set of prompts was also used to follow up interesting aspects and clarify inconsistencies in answers (Appendix B shows the full questionnaire). After transcribing the interviews, different key themes were identified in each province. More specifically, the analysis was conducted by codifying responses; the first level codes generated from the conceptual framework (section 3.4) were mainly driven by the interview questions, following a *deductive top down approach* (Braun and Clarke, 2006; Fereday and Muir-Cochrane, 2006), whereas second level codes were developed from the emerging findings. Similar codes were grouped under the same ‘theme’, ensuring a sufficient level of homogeneity, and organized in an Excel file following a semantic approach. This means that data interpretation remained mainly linked to the words of the participants (Braun and Clarke, 2006; Fereday and Muir-Cochrane, 2006).

Responses for each theme were also divided in two categories: 1) Positive: whether the owner/manager highlights a positive contribution of the local context with respect to the considered theme; 2) Neutral/Negative: whether the owner/manager highlights a neutral or negative contribution of the local context with respect to the considered theme. Further information about the coding process and the identification of themes is given in Appendix C (C.1 and Table C.1).

Table 4.3 in Chapter 4 provided general information on the sample of selected firms in terms of number of employees, constitution date and so on, whereas Boxes 6.1 and 6.2 present a more detailed description of firms’ activity and level of performance. Firms’ real names have been anonymized to ensure confidentiality; companies located in Milan are characterized by the acronym (MI), while those located in Palermo by the acronyms (PA).

Box 6.1: Description of interviewed firms in Milan

| <u>ACCOMMODATION AND FOOD SERVICE ACTIVITIES</u> |
|---|
| <p>1) CountryHotel&Rest(MI) includes a Hotel (three-star category with 10 rooms) and a restaurant located few steps away from the hotel; both the hotel and the restaurant are situated in the countryside of Milan, in a charming ancient Cistercian monastic complex in front of an important medieval abbey and close to the high-speed motorway. The restaurant is not only reserved for</p> |

| |
|---|
| hotel's clients, but is also open to the public. Big companies such as SKY and ENI are located nearby and their workers and business visitors are the main firm's clients. After an initial growth of 100% during the first year, the growth rate was about 35%/40% per year. |
| 2) Catering(MI) is a catering food company that organizes coffee breaks and catering services for a wide range of events such as private ceremonies, conferences, exhibitions and so on. Its turnover is around €1.5 million and it has experienced constant growth since 2007. |
| 3) CentralHotel(MI) is a four-star hotel (superior category) with 62 rooms, located in the centre of Milan close to Via Montenapoleone, Duomo and Piazza Scala. The hotel is housed in a historic 1800 Milanese building and the hotel philosophy shows a strong orientation towards environmental sustainability. The average annual growth rate is around 15%. |
| 4) Café(MI) is a bar/café and restaurant located in the centre of Milan, inside a design/vintage shop. The intent of the owner is to mix Milanese traditional cuisine with fashion and design that symbolize Milan's memory and culture, in particular in the '50/'60s. The company has experienced constant growth since the beginning of the activity. |
| 5) Restaurant(MI) is an Italian 'cosy' restaurant located close to Navigli and Porta Genova station. It was founded by two women, one come from Sicily while the other from Emilia Romagna. The company has doubled its turnover and number of personnel since the beginning of its activity. |
| <u>INFORMATION, COMMUNICATION AND TECHNOLOGY</u> |
| 6) Digital studio A (MI) is a Web agency located outside the centre of Milan. The company designs and creates innovative strategies for the Web and deals with social media, apps, websites, branding policies, packaging identities, political communication, crisis management and videos. The company has experienced constant growth since 2009. |
| 7) Softwarehouse(MI) is a software production company that provides end-to-end retail solutions for the front and back office. Its customers include bookstores, specialty stores and luxury fashion brands. In January 2016, the company was acquired by a big Italian group that designs and manufactures professional printing devices for industrial automation. Thus, the operational office was moved from Cormiano (Milan) to Gallarate (Varese). The company's average growth rate is about 10% per year. |
| 8) Digital studio B (MI) designs and builds digital products helping entrepreneurs and forward-looking companies to shape or enhance digital products and services. The company is located in Milan in a co-working space for a selected community of innovators and has grown 60/70% since the beginning of the activity. |
| 9) Microsoft(MI) is a company which is specialized in creating projects with Microsoft platforms that are related to united communications, flexible work style, private and public cloud. Its projects introduce new Microsoft technologies into different types of companies to facilitate their operations. The company is located in Milan and recently moved in the technological hub of BovisaTech. It experienced a slow constant growth until 2013 while growing around 30% during the last 2/3 years, due to an internal restructuration. |
| <u>MANUFACTURING</u> |
| 10) ClothesManu(MI) is a streetwear brand, fully designed and manufactured in Milan. Its founders were all members of the Milanese 'skate and hip-hop subculture. They sell their products online and they also realize productions for third parties. Turnover was around €3 million in 2015, while growth rate was about 30/40% in the last 3 years. |
| 11) JewelleryManu(MI) is a jewellery manufacturing company that produces customized jewels. It is an innovative and contemporary company that follows the 'urban style'. Their shops are located in Milan, Como, and Rome, and Switzerland and Spain. The company growth rate was around 25% in the last three years. |

Box 6.2: Description of interviewed firms in Palermo

| ACCOMMODATION AND FOOD SERVICE ACTIVITIES |
|--|
| <p>1) VillaRestaurant(PA) is a villa-restaurant located in the promontory that stands above Palermo. The villa belongs to a family of entrepreneurs and was used as discotheque until 2010 when it was transformed into a restaurant. The business is run by two young entrepreneurs, brother and sister, and has been growing at an annual average rate of 25% in the last 5 years. The restaurant menu is based on “Slow Food” products selected within the region.</p> |
| <p>2) CastleRestaurant(PA) is a luxury restaurant located inside an ancient Castle in front of Palermo’s harbour. The owner is a famous Italian chef who usually participates in different TV programmes. The average annual growth rate of the company is 15%; however, the business incurred losses between 2010-2014 due to the temporal suspension of the activity for legal disputes with local authorities.</p> |
| <p>3) IslandRestaurant(PA) is a family run historical restaurant located in Ustica, a small island 50 km from the coast of Palermo. Since 2014 the restaurant has grown by 80% due to changes in the business strategy; in particular, the owner opened a pizzeria and started hiring local workers, causing a shift of customers from tourists only, to local people.</p> |
| <p>4) Threehotels(PA) is a group that owns 4 hotels, 3 located in the province of Palermo and one in the Eolian Islands. Among the three hotels in Palermo, the first is located in the historical centre, the second between Mondello beach and the natural reserve of CapoGallo, and the third in a small village close to Palermo, Altavilla Millicia. Although the company is well-established in the Sicilian touristic sector, the group has registered annual losses of around 5% in the last 5 years due to the increased level of competition.</p> |
| <p>5) Hotelbythesea(PA) is a hotel located in a small maritime village (Terrasini) and belongs to the son of a well-known entrepreneur in the Sicilian hotel industry. The hotel has private access to the sea and is also used as congress centre. The company grew by 10% in 2015 and is now recovering from a period of losses incurred during the financial crisis (turnover was €4 million in 2015).</p> |
| <p>6) TwoCentralhotels(PA) is a company which owns two hotels, both located in the city centre of Palermo and managed by young entrepreneurs. Although the company experienced losses in 2014 due to price reduction caused by increased competition, the average annual growth rate has been around 10% since then.</p> |
| INFORMATION COMMUNICATION AND TECHNOLOGY |
| <p>7) HealthICT(PA) is company which operates in the Information Technology sector and provides a different range of digital services aimed, in the first instance, at meeting the needs of the health sector. The company grows at an average annual rate of 10%.</p> |
| <p>8) Webagency(PA) is a company that sells IT products; it provides technical assistance and operates as a Web agency. The company experienced high growth rate from 2007 to 2011 and consequently, losses during the period of crisis. It is now growing at 10% yearly since 2012.</p> |
| <p>9) Social innovation ICT (PA) is a cooperative that develops creative solutions for social innovations. It helps communities, governments and organizations to innovate and be effective in a sustainable way. The company experienced constant growth since from the beginning of the activity (€70K in 2015).</p> |
| <p>10) CultureICT(PA) is a company born from a spinoff of University of Palermo. It designs and realizes solutions for mobile devices, particularly APPS for the cultural heritage and utility fields, by integrating display modules and information research. Since 2014, the company has been growing at an annual rate of 10%, particularly thanks to several prizes and funds received by the European Union.</p> |
| <p>11) DataProtection(PA) is an ICT company that works on the latest innovations to enable digital transformation and business innovation. It is born from a spinoff of the University and Palermo to provide strategic advice to the Business Security and for the management of the associated risks related</p> |

| |
|--|
| to data protection. The average growth rate is 20% yearly. In 2013, the company opened a commercial branch in London (UK). |
| <u>MANUFACTURING</u> |
| 12) ElectricManu(PA) is a company born as a spinoff of a telecommunication company. It is part of a big group in electronic and manufacturing services and its line of business includes the manufacture of industrial and commercial electrical equipment. The company produces for third parties, particularly for the German automotive industry and for household appliances. The turnover was €25 million before 2012; dropped to €13 million due to the crisis to increase again in the last few years (€16 million in 2015). |
| 13) FurnitureManu(PA) is a family run manufacturing company located in Carini (Palermo) that furnishes leading franchise brands operating in Italy. The annual average growth was around 20% until 2009 and now the company is recovering from a period of losses due to the crisis. |
| 14) BeverageManu(PA) is family run business that transforms citrus fruits to produce juice and essential oils sold abroad to the most important companies in the food & beverage, fragrance, cosmetics, and housewife industries. The average growth rate has been around 10% since 2013. |
| 15) FoodManu(PA) is a family run business company that works as producers of canned traditional Sicilian food using secret family recipes. The company grows 8-10% per year. |

6.3 Description of the main themes identified in Milan and Palermo

The insights provided by the qualitative procedure enable a better understanding of the different nature and operation of territorial capital in the two selected provinces, showing how its characteristics as well as its contribution to firms' performance are peculiar to each place. The main themes emerging from the interviews are presented and discussed one by one in each province, through the words of entrepreneurs, unpacking both intangible and tangible components of territorial capital. In this way, it is also possible to explore *how*, according to the view of owners/managers, the local context with its specific endowment of territorial capital influences firms. The list of themes identified in each province, the number of positive/negative responses is also presented on the right side of Table 6.1 and 6.2 which are located in the second part of this chapter.

6.3.1 Territorial capital and firms' performance: main themes of Milan

Human Capital

Results from the interviews conducted in Milan show how this province is a rich source of **cognitive/intellectual capital**⁴⁸; in fact, it is able to supply skilled workers not only because of its educational system, as further discussed in 6.3.3, but also due to its capability to attract human resources from other regions and countries. For example, the vast majority of firms (8 out of 11) consider Milan an attractive place for skilled workers, where human resources recruitment is rather easy in all sectors. This ensures a diversified supply of human capital, giving the possibility to contain recruitment and training costs: *"The city is always a few years ahead compared to the rest of Italy, with respect to adoption of technologies and buy/sell philosophies...this represents a strong attraction for mid-top management profiles...maybe everyone would prefer to work in a beautiful hotel in Otranto, with beautiful landscapes and lifestyles, but if you really want to acquire knowledge about new trends and international sales, it is better to come to Milan...the supply of workers is huge. I don't have to ask for people; I have to turn them away"* (CentralHotel(MI)). The owner of JewelleryManu(MI) adds: *"Milan and in general Lombardia, apart from goldsmiths,⁴⁹ is certainly an important human capital source where you can find the right people"*.

The multicultural environment and the presence of immigrants is also considered an asset by one third of firms in the A&F and Man. sectors as it provides additional skills to the market: *"The mix of culture existing in Milan makes people available who speak several languages. Italians barely speak English while foreign people, in particular those coming from Eastern Europe, speak up to four different languages"* (CentralHotel(MI)).

The presence of a vibrant competitive environment also plays an important role in training human resources. According to three firms, this increases the possibility to hire people who have developed their skills working for similar companies, particularly

⁴⁸ Although intellectual capital may influence businesses performance from different perspectives (for example, affecting the network of suppliers, clients, business partners, employees and support infrastructure), the way in which this was discussed in the interviews mainly focused on the investigation of the link between existing intellectual capital and firms' employees.

⁴⁹ The owner recruits goldsmiths from other regions such as Veneto or Tuscany where gold handicraft tradition is more embedded.

in traditional sectors such as A&F and Man.⁵⁰: *“Luckily there have always been Italian companies that guarantee the availability of high skilled professionals”* (JewelleryManu(MI)).

In terms of **creative capital**, overall, the province is characterized by a creative and ‘trending’ environment which stimulates innovation and contributes to increase business opportunities. This atmosphere is generated through the organization of numerous events, the existence of a lively competitive environment and networks of relations which continuously create opportunities of exchange and cross-fertilisation among firms. For example, according to seven firms across all sectors, the organization of events and the existence of a ‘trendsetting’ atmosphere inspire the generation of ideas and promote new business opportunities: *“Expo has transformed Milan...in 2010, Milan was still considered an industrial place for business trips. Today it has its core business in the touristic hospitality...it is increasingly becoming a ‘trendsetter city’ that leads the way in design, fashion and innovative trend; this aspect is particularly appreciated by tourists that are not only interested in beautiful landscapes, but also in discovering new life styles”* (CentralHotel(MI)). Similarly, the owner of Digital studio A (MI) believes that *“being in the creative sphere of Milan is more stimulating and challenging because several events are organized and more things happen...”*. The owner of JewelleryManu(MI) adds: *“I am lucky to be born in Milan where I had the opportunity to know new trends linked to rap music, graffiti, fashion; all those things influenced me a lot and this is what makes the difference between us and other companies located in Vicenza or Arezzo, in the countryside. There, it is more difficult to pinpoint and understand market trends”*.

The existence of a vibrant competitive environment is also an important source of creativity, according to four firms; in this regard, the manager of CentralHotel(MI) states that *“every three months we have to invent something new to differentiate from the others”*, while the owner of ClothesManu(MI) adds: *“I can look around and see innovative things; it is a kind of competition among us; we can see what Gucci does; Gucci looks at what we do and, even if we are on two different planets, we contaminate each other”*.

⁵⁰ In the ICT sector, *“it is easy to find people with average preparation but not to find people with long work experience...It is not easy because this is an emerging industry”* (Microsoft (MI)).

The strength of relational capital within the province and the proximity to other innovative firms also contributes to enrich the creative capital as it stimulates new ideas and creates new business opportunities (four firms): *“The network of contacts that Milan offers is useful to speed up many processes of thought and reflection”* (Digital studio B(MI)). This company, for instance, is also located in a co-working space where other ICT firms are based: *“It is crucial to our business; it is not just an office; 80 people work here. There is cross-fertilisation and exchange of contacts and events... Milan certainly favours this; it stimulates creativity and facilitates business development”*.

Social Capital, Cultural Capital and Institutions

According to the owners/managers interviewed, Milan has a good level of bridging **social capital**, emphasized by the existence of a sense of trust between people. In particular, the majority of the interviewees in all sectors consider ‘relational capital’ an important asset to offer superior products/services, facilitate production/sales, promote new business opportunities, reduce transportation costs and also, as previously explained, favour creativity. For instance, the manager of the CentralHotel(MI) thinks that by collaborating with cultural and entertainment entities, it is possible *“to make clients aware of something that they wouldn’t be able to discover alone”*. The owner of ClothesManu(MI) asserts: *“We can find everything within 10 km, print houses, apparel workers, sewing companies, embroiderers. It is very easy to access all of this”*.

In the A&F sector, relations and collaborations also ensure better control over raw material quality and environmental sustainability with potential benefits in terms of firms’ image and reputation (five firms). In this regard, the owner of CountryHotel&Rest(MI), located in the Agricultural Districts of Milan (DAM), points out that *“all our products are delivered according to the ‘km 0 philosophy’*.⁵¹ *We find everything within 10/15 km.”* The manager of CentralHotel(MI) affirms that *“relations with local providers have a primary role; we set up an agreement with farms located in*

⁵¹ The km0 philosophy identifies an economic approach which favours certified local food instead of global products, reducing the circulation of food whose origin is not always certified, as well as transport costs and pollution. <http://www.chilometrozero.net/> accessed on April 20th, 2016; h: 11.33 am

Parco del Ticino so we can receive fresh products every day...we can avoid big distribution that bring low cost products but pollute the planet”.

Four firms believe that ‘trust’ improves relations with providers, employees and clients, creating harmony and strengthening entrepreneurial self-confidence. However, this does not emerge as a peculiar territorial feature rather than something embedded in the personal quality of people: *“Trust is a cultural aspect; there are people that you can trust and others you can’t. It depends on their mentality”* (ClothesManu(MI)). With respect to the value of ‘civic sense’ as a dimension of social capital, this does not emerge as something that influences business, although the manager of CentralHotel(MI) states that *“we don’t have the same beauty of other Italian towns, but tourists are happy to see the level of cleanness and organized social cohabitation that characterizes Milan”.*

In terms of **cultural capital**, owners/managers explain that local culture matters for their performances in different ways; for example, clients’ cultural trends and habits such as the *“diffusion of veganism”* (Café(MI)), or the fact that *“the San Siro museum is one the most popular museums in Milan”* (CentralHotel(MI)) may influence the firms’ supply of products and services. Four companies in the A&F sector affirm that ‘local ancient traditions’ linked to food preparation such as *“pasta and bread, dessert prepared with traditional recipes”* or *“taglietelle al ragu’ prepared with grandmother’s recipes”* are important to attract and retain clients. *“Customers love to eat something that can tell a story”,* states CentralHotel(MI). However, traditions should be maintained without *“being too old and boring”* (CountryHotel&Rest(MI)).

Milan also reflects a good ‘entrepreneurial propensity’, ‘work oriented’ and ‘open-minded’ identity, where clients are able to accept and understand new trends and innovation; this positively affects businesses, influencing the supply of products and services and favouring a job oriented culture: *“When you open a restaurant in Milan, even if you are not that good you can survive for few years because there are always people that want to try new things...”* (Restaurant (MI)), or *“I work in the best place in Italy where being in the ICT sector is also easier for the culture of our clients”* (Microsoft (MI)). Digital studio A (MI) also affirms that the *“stereotypical connotation of Milanese people, hasty and work oriented, with a pragmatic approach sets our work rhythms...people working in other Italian cities do not have the same rhythms, tight*

deadlines, contacts, and they cannot apply the same prices". Moreover, the entrepreneurial culture is spread and this helps firms in being more dynamic and competitive, attracting clients and potential partners that are located outside the city: "We are also recruiting many clients from central Italy because it is unlikely that their local partners are at the cutting edge" (Microsoft (MI)).

With respect to the **institutional capital** of the province, the vast majority of firms highlight the lack of adequate support offered by local public organizations due to their poor attention towards firms' needs. For example, the owner of CountryHotel&Rest(MI) declares that local authorities did not sustain the company when they decided to invest and refurbish ancient water channels in the nearby medieval areas, which is of public interest: *"Local authorities stepped up only when the project was already realized to take the merit of that action...local authorities are a burden...."*. The manager of CentralHotel(MI) adds, *"we have no relationship with them; the world of politics does not talk with tourism"*. Thus, in most cases, according to the owners/managers' point of view, public organizations do not contribute to firms' performance. Issues related to the set of law and regulations will be discussed in section 6.3.3.

Physical Capital (infrastructure)

According to all firms, a very important aspect which is peculiar to the province of Milan is represented by the presence of adequate and efficient **transport and digital infrastructure**. The co-existence of public transport, digital networks, and air connections facilitates interchanges and reduces transport costs. This is the case in all sectors, although most ICT companies highlight the digital divide existing between the city and its province as this creates difficulties in working from home or dealing with clients that are located outside the city: *"The public transport of Milan is excellent and this has a decisive impact on business because it is easy to move around. Internet fibre is everywhere in town; however, if you want to work from home but you live outside the city, the DSL service is very slow and this has a negative impact because if people had adequate facilities, they could easily work from home"* (Microsoft (MI)).

Artistic and Natural Capital

The presence of **artistic capital** in Milan, although not comparable to other Italian provinces, is also valuable. This aspect will be discussed in detail in 6.3.3. Conversely **natural capital**, in general, does not seem to have a prominent role in firm performance with exception of the A&F sector, where the easy access to high quality raw materials ('cultivated natural capital'; Cochrane, 2006) becomes a valuable source of cost/differentiation advantage, as it will be discussed in 6.3.3. However, most of the interviewed businesses are located inside the city and this could explain the neutral influence of this asset upon firms' performance.

With respect to the endowment of other natural resources such as gas and water, none of the interviewees mentioned their availability and accessibility as a problem and/or opportunity with the exception of the CentralHotel(MI), which stated that the use of local natural resources reduce costs in the long term and improves eco-sustainability: *"Milan has a big treasure in its aquifer...this hotel uses underground water, thanks to complicated technologies to produce energy...we don't produce CO2 and we don't pollute the environment..."*.

Financial Capital

In terms of **financial capital**, access to private and public finance is considered difficult or, in some cases, not useful. For example, in terms of access to credit, only three companies out of eleven received a bank loan; in all the other cases, businesses were self-funded. Five companies affirm that access to credit is not particularly easy for young entrepreneurs. For example, the owner of JewelleryManu(MI) points out: *"Now we have very good relationships with banks...but at the beginning, although we had very good results, I was forced to ask for the support of my family...we had to make an investment to buy the first shop and the lab and, without my family, this would never have happened...of course, after all is said and done, it is easy for banks to lavish their support"*. In addition, three firms had not needed to access credit such as the owner of Digital studio B(MI) stated: *"We are lucky because we never needed credit. We have a good cash flow and we never requested credit; we never invested more than what we had"*.

With respect to access to public finance, Digital studio A (MI) and Digital studio B (MI) state that calls for grants offered by public organizations are usually designed by people ignorant of the future of digital business and therefore useless: *“If the grant is restricted only to firms that must have 20 people to realize something that can be easily done by 2 people, it means that you don’t know what you are talking about...call for grants and similar things are very binding and they are often written by people that do not know the territory and the sector”* (Digital studio A (MI)). The owner of (Digital studio B (MI)) adds *“it is very difficult to find and apply for grants as extra resources would be needed just to carry out this activity”*.

Thus, it seems that financial capital has a little contribution to firms’ performance. However, this result could also be affected by the small dimensions and recent constitutions of some firms in the sample that, for this reason, may have more difficulty in obtaining private or public funding.

6.3.2 Territorial capital and firm performance: main themes of Palermo

Human Capital

The qualitative analysis carried out in Palermo shows how the nature and operation of territorial capital is different from Milan. In terms of **cognitive/intellectual capital**, the province is able to supply skilled employees because of its educational system (see section 6.3.3), although its overall contribution seems less strong than in Milan. For example, according to owners/managers, only the A&F sector can benefit from the presence of a vibrant competitive environment where employees get further experience. In addition, although Sicily is able to attract human resources due to its quality of life in terms of good weather, cheap living and biodiversity of the natural surroundings, this does not always compensate for the brain drain caused by low salaries and poor job opportunities.

In this regard, only three firms believe that the province of Palermo is an attractive place for skilled workers: *“Many people have experiences abroad...but then they decide to come back because one advantage of being in Sicily is that Sicilian people crave coming back and improving things here because after travelling around, they realize that the quality of life is high in Sicily ...from an economic point of view, living costs are low; thus, we are competitive and attractive; we have three employees*

from Frosinone, Modena and Turin” (SocialInnovationICT(PA)). At the same time, according to other three firms, the province is not able to retain talent, particularly in the ICT sector: “Last year there was a guy, he was extremely good, he moved to London...” (HealthICT(PA)) and the owner of Webagency(PA) adds: “I was working with three amazing engineers; all of them at one point were contacted by UK companies; I could not compete in terms of salary, opportunities and so on. So, they left...they were too good (to stay here)”.

Another interesting point, stressed by one interviewee in Palermo, relates to the role of traditions and tacit knowledge in enriching employees’ intellectual capital and therefore firms’ performance: *“In Sicilian islands, usually cooks follow their mothers and grandmothers...training is linked to the island culinary tradition, which is very much appreciated by clients; thus, school certificates are only a formality...the most important thing is the culinary passion and tradition inherited by family” (IslandRestaurant(PA)).*

In terms of the creative stimulus of the local context (**creative capital**), the situation is very different compared to Milan as the province has a low capacity to promote opportunities for networking and exchange among firms; only natural and artistic capital, where the region is extremely rich, plays a role in stimulating creativity in the A&F sector, making products and places available that are unique, as will be explained in 6.3.3.

In this regard, seven firms highlight how the province of Palermo is not always capable of stimulating new ideas and promoting innovation, with the exception of the A&F sector. The manager of HealthICT(PA) points out: *“We don’t take any benefit from the local context...we work at international level thus we look outside”.* A similar answer is given by the manager of DataProtection(PA) stating, *“...territory never stimulated us...new ideas are developed outside the local context”.* Similarly, the manager of ElectricManu(PA) states: *“Our company has a competitive disadvantage compared to firms that are located in other places. We don’t have any financial contribution to innovation, neither are we located in a context that can promote innovation. I can say that the contribution of the local context to our technological development is quite low”.*

However, according to two firms in ICT, cultural characteristics such as *“the art of sorting yourself out”* (*l’arte di arrangiarsi*), typical of people who have always worked in difficult contexts, may stimulate the generation of new ideas: *“Those have always been used to working in difficult and deprived contexts develop creativity to solve problems that don’t exist in other places...We are able to deliver the same results with fewer resources because historically, we are used to this disadvantage and therefore we learn how to solve problems; we have this in our DNA; we are more practical as we live in context where we have to do things with what is available”* (SocialInnovationICT(PA)).

Social Capital, Cultural Capital and Institutions

Although there are cases of fruitful collaboration, **social capital** is considered low (Leonardi, 1995) and mainly based on ‘bonding’ and ‘linking’ relations. This means that collaborations rely on immediate connections such as family or friendship or on people in positions of authority. Thus, firms in general show low propensity to collaborate due to an individualistic entrepreneurial mentality.

On the one hand, nine firms highlight the importance of relational capital in offering superior products/services, facilitating production/sales and reducing transportation costs. Collaborations in Palermo may also help in facilitating access to public funds: *“In these days, we are trying to look for new forms of collaboration to link start-ups, innovative SMEs to act as unique entity, and have easier access to regional funding”* (CultureICT(PA)) as well as in supporting the local economy: *“I am trying to recruit and expand the network of local providers...this gives us a lot of benefits because providers are close and so we can react faster if it is needed, and also we contribute to the development of the industrial area around, which is not in good conditions* (ElectricManu(PA)).

On the other hand, seven firms highlight a lack of collaborative culture which, in many cases, hampers the establishment of profitable relations: *“In Sicily, it is impossible to collaborate; some people feel smarter than others; there is no networking approach...we have been seeking this kind of approach for years...but individualism is very strong; so, we did not succeed”* (Threehotels(PA)). The owner of FurnitureManu(PA) follows: *“We used to collaborate with other Sicilian companies but*

unfortunately these relations are not long lasting because Sicilian mentality creates situation of envy...".

Moreover, as previously explained, the capability to cooperate and to trust seems to rely much more on immediate relationships, which has been defined as 'bonding social capital' (Woolcock, 2004 in Malecki, 2012): *"We work in networks; we believe this is very important...if there is a personal relationship it works even better..."* (TwoCentralhotels(PA)). The owner of Hotelbythesea(PA) adds that *"Sicilian people do not cooperate that much. We have nice relationships with some entrepreneurs but this is more driven by personal relationships rather than a strategic approach; this is a pity. Everyone looks at his own business; everyone is scared that you steal clients"*.

According to the analysis conducted, **cultural capital** in the province of Palermo has a diverse effect on firms' performance. Whilst ancient local traditions, traditional celebrations and tacit knowledge have a positive impact particularly in the A&F sector, local mentality and customers' habits have a mixed outcome. However, in general, the local context is characterized by a lack of entrepreneurial culture, risk propensity, openness and innovation which hampers firms' performance. For example, according to four firms, the existence of 'cultural heritage' attracts customers, particularly in the A&F sector: *"Sicily is full of cultural attraction. People who come here are not only interested in swimming in the sea, but want to discover our cultural patrimony, which is one of the richest in the world. Culinary traditions, monuments...we are considered the second island in the world to be visited. The mix of things here does not exist in other places..."* (Hotelbythesea(PA)). Traditional historical celebrations also have a potential to attract tourists in Palermo, although these should be planned and advertised more appropriately with the help of local authorities (three firms): *"Traditional celebrations are a tourist attraction; however, it depends on which way they are advertised; many people don't know what happens"* (Hotelbythesea(PA)).

Seven firms also discussed the role of local habits and mentality of people. This can have both a positive⁵² and negative influence on firms' performance, depending on

⁵² Some entrepreneurs stress the sociable and welcoming aptitude of Sicilian people: *"I have to say that although from an entrepreneurial point of view we don't really like the local culture, customers never complained about people from Palermo...people from Palermo are welcoming, generous sociable; tourists like them in this way"* (TwoCentralhotels(PA)). The owner of VillaRestaurant(PA) highlights another positive aspect related to employees' culture: *"Palermo does not offer too many job opportunities; thus, when*

the type of dimension considered, but results show a generally closed mentality, resistant to innovation, which may influence the supply of products and services: *“Sometimes people’s mentality is closed; for example, clients are reluctant in trying new dishes; so, you need to talk to them and explain things; otherwise they don’t understand. Their mentality is not that flexible...sometimes the mindset can be a limit”* (VillaRestaurant(PA)). In addition, the mentality is, in general, low cost oriented: *“65%/70% of our clients reside outside Sicily because we produce a complex system and we need clients that are able to understand the value added of our service and pay for it”* (SocialInnovationICT(PA)).

Additionally, the most recurring theme emerging from interviews is represented by the lack of entrepreneurial culture and friction to innovation that characterizes Palermo, which is seen as a severe problem by half the firms interviewed, across all sectors. This aspect is already apparent regarding the general lack of collaborative capabilities and the scarce creative propensity of the province. In addition to this, the manager of HealthICT(PA) notes: *“There is a weak culture of innovation...then there is a problem with entrepreneurial culture...a lack of open-mindedness...then there is a lack of risk propensity...there are a lot of cultural problems”*. The manager of SocialInnovationICT(PA) adds: *“We often face a mentality that we would like to eradicate. There is an extreme resilience against change; everything that is new, different, or that may trouble those situations in which we have lived in the last 50/100 years is seen as a threat...”*; while the owner of FurnitureManu(PA) follows: *“In Sicily, the mentality is based on permanent employment; there is no entrepreneurial culture...”*. Furthermore, traditionally, Sicilian entrepreneurship has a strong family ownership base and this may cause problems in generational replacement: *“Often incompetent people are hired as directors and managers just because they belong to the family...they don’t have capabilities”* (FoodManu(PA)).

In terms of **institutional capital**, entrepreneurs highlight how bureaucracy, mafia, corruption and clientelism are obstacles to firms’ operations.⁵³ In fact, the vast

employees are given a chance, when they are happy to work for you and believe in your projects, they give you everything; people from Palermo are made in this way... people are linked to human values which, in my opinion, are very important to firms”.

⁵³ A positive aspect related to the role of local authorities is stressed by four firms in Palermo that see the organization of internship programmes sponsored by universities and local authorities as a valuable tool in

majority of firms emphasize the lack of adequate support offered by local public organizations in supporting firms, due to inefficiencies, and slow procedures which may hamper business: *"To be honest, it is better to work by yourself, without their help; they ask for such long procedures that in the end, you lose spirit"* (IslandRestaurant(PA) or *"When we worked with the regional authority we had troubles in collecting our money...the sale process was very complicated and there were a lot of problems with bureaucracy"* (Webagency(PA)).

Another important theme refers to the problem of 'mafia protection bribe' (called *pizzo*) that must be paid by local entrepreneurs to local criminals.⁵⁴ Five interviewees indicated this issue as a friction to business development which is not always properly addressed by local institutions. For example, the owner of CastleRestaurant(PA) stated that after reporting his prosecutors to the police, *"All of them were arrested; during the first months the institutions supported me but then nothing...they gave me body guards but only if I stay in Sicily; not for example, if I travel to Rome. I did not receive any support, only from some associations like 'Addio Pizzo'..."*. The owner of IslandRestaurant(PA) adds: *"I was working for *** when the entrepreneur was asked to pay 'pizzo'; I am scared about the idea of opening a business activity outside the small and protected reality of Ustica island"*.

Three other firms emphasized the problems of corruption and clientelism ('linking social capital') which characterize local institutions and that may hamper business: *"Here public administration does not work for meritocracy but only because people have been placed by other people in certain places"* (HealthICT(PA)), or *"To access public funding, you need to have 'particular requirements'..."*⁵⁵ (Webagency(PA)).

Additionally, entrepreneurs often explain how ineffective and inefficient institutions are a main obstacle to the adequate valorisation of Sicilian territorial capital. For example, the owner of Threehotels(PA) states: *"Sicily has a lot of potential in the field of tourism but due to the decay of the public administration, it is not able to catch these opportunities"*. The owner of FoodManu(PA) believes that *"a weak*

facilitating firms in recruiting employees: *"This tool is very useful because it give us the possibility to train young people and offer them job positions..."* (SocialInnovationICT(PA)).

⁵⁴ According to XII Rapporto SOS impresa Confesercenti, every year in Sicily, 50,000 companies are hit by criminality and mafia

⁵⁵ The interviewee is referring to the problem of 'clientelism'.

collaborative culture depends on the fact that there are no common projects and that institutions always deal with us as individuals, not as a supply chain. Institutions did not make any effort to put all firms together and to develop them, they say this just with words but not with actual facts". The owner of CultureICT(PA) adds that *"it would be wise to create an innovation and technology hub at 'Polo Fiera del Mediterraneo' but this is still not realized. There are so many small innovative enterprises that act individually and not all together...institutions are not promoting a consolidation of this patrimony, which would also facilitate access to EU funds".*

Physical Capital (infrastructure)

Transport infrastructures in the province of Palermo are scarce and inefficient and this is considered one of the main weaknesses of the local context, emphasizing the negative effect of geographical isolation. The vast majority of firms (12) discuss the lack and backwardness of Sicilian infrastructure, both in terms of connections within the region and with the rest of the country, which translates into higher costs and a loss of business opportunities: *"When there was this problem with the Palermo-Catania motorway,⁵⁶ prices and access to raw materials increased a lot"* (VillaRestaurant(PA)). The owner of IslandRestaurant(PA), which is located on a small island in front of Palermo, points out: *"Last year there was only a hydrofoil and a boat from the 70s that broke, and so American and Chinese tourists that had to take their flights had to wait 5-6 hours in the middle of the sea...this is a disaster for everyone, hotels, restaurants and so on".*

Furthermore, the small number of flights directed to Palermo affect the tourist business of the island: *"...because we are geographically isolated, tourists cannot use fast speed trains...the number of flights from/to Palermo is absolutely insufficient; the airport is ok but all other infrastructures are not good...road constructions in progress are everywhere. There are few tourist ports etc....the problem of infrastructure is severe"* (Threehotels(PA)). The presence of digital networks is considered decent but not at the same level of other European cities: *"These are not that bad but in some industrial areas it is a disaster; one client of ours in Catania has 3 different internet lines..."* (DataProtection(PA)).

⁵⁶ The collapse of a bridge in 2015 made the motorway Palermo-Catania unusable for few months, partially impairing the connection between the two most important cities in the region.

Artistic and Natural Capital

Artistic and natural capital, in which Sicily is extremely rich, are valuable assets with a strong potential to attract tourists and customers, although these assets are neither properly valorised by the public administration nor always accessible. The importance of artistic capital will be explained in 6.3.3.

With respect to **natural capital**, five firms, mainly in the A&F sector, believe that the presence of mountains, sea, and good weather in Palermo has the potential to attract tourists and customers. Four interviewees also believe that the local natural environment has an impact on the quality of life, which indirectly brings benefits to entrepreneurs and employees. This aspect, as previously explained, also plays a role in attracting and retaining valuable human resources: *"The fact that in Palermo there is sea, good weather where you can stay outdoors, these geographical characteristics influence people...we also know an increasing number of people that are not from Palermo that want to come to live and work here...sea, mountains, and nice weather have an impact"* (SocialInnovationICT(PA)).

Moreover, according to three firms, the mix of natural environment and natural resources is a source of creativity and inspiration in the A&F sector: *"The local context stimulates me a lot because there is an enormous supply...for example, 'Cinisara's cows'...I am in love with the idea of eating cheese and meat from wild cows...everything changes. From an ethical point of view, the animal is not stressed; from a nourishment point of view, there are no saturated fats because cows eat what nature supplies. This is offered by the province of Palermo; the territory gives me a lot of inspiration and I always take notes"* (VillaRestaurant(PA)). The owner of CastleRestaurant(PA) adds: *"Sun is important because I love good weather; it inspires me. When you wake up in February with 23-24 degrees, when you see the sea, the sunlight you start the day in a good way; it is important to live in this way to carry out this job"*. The owner of IslandRestaurant(PA) follows: *"...territory stimulates a lot because we have products that you cannot find anywhere else, lentils, wild fennel, and we need to discover how these things can be cooked...I read a lot and look around"*.

Agricultural raw material quality is also important to offer better products, as further explained in 6.3.3. With respect to other natural resources, as per the interviews in Milan, these are assumed as a 'given fact', although two firms raise a

problem of accessibility which may lead to cost increases: *“Sometimes we have problems with electricity cuts”* (ElectricManu(PA)) or *“There are problems with access to water, gas; for example, we don’t have direct access to natural gas. We had to use gas tanks. We have a lot of problems, but we overcome these difficulties with love and passion for what we do”* (VillaRestaurant(PA)).

Financial Capital

In terms of **access to credit**, the banking system is also considered inadequate as is the support given by public institutions. For example, the owner of FoodManu(PA) says that *“costs are very high, procedures very slow and this is not what entrepreneurs need”*. The manager of CultureICT(PA) adds that *“there is big lack of competences in rating risk companies...the banking system is still in its childhood in sustaining start-ups”*. **Public finance** and other minor public initiatives such as the organization of internship programmes sponsored by local authorities are considered valuable tools in some cases. Six firms in Palermo had the opportunity to get access to public finance, which was beneficial in some cases⁵⁷; for example, public funds played a crucial role in CultureICT(PA) which used this money to start two new projects, hiring new employees, and making the company grow. However, this tool is not always considered useful and firms excluded by the calls may incur a situation of ‘unfair competition’: *“Some companies are excluded by POR (Programma Operativo Regionale, EU funding); in tourism, those funds were available only for new touristic structures...so existing hotels started to compete with new modern hotels and this caused problems of unfair competition...”* (Hotelbythesea(PA)).

6.3.3 Similar themes identified in Milan and Palermo

While sections 6.3.1 and 6.3.2 have provided an insight into the different nature and operation of territorial assets in Milan and Palermo, there are also similarities related to the way in which territorial capital influences firms in both areas. For example, according to nine firms in total, the presence of good schools and universities is the most important asset in facilitating the recruitment of skilled employees and managers (**intellectual capital**). However, the large majority of owners/managers in

⁵⁷ Sicily is an ‘Objective 1’ region, according to the classification given by the EU and receive higher amount of public funds comparing to the North.

both provinces believe that the local education system is not always effective and often *“out of time”* (ClothesManu(MI)). In particular, it emerges that A&F schools fail in preparing professional waiters, while universities adopt obsolete study plans which are not able to train cutting-edge software developers in the ICT sector: *“We use methodologies that are not yet taught in the faculties of engineering...our software programmer is 18 years old and we hired him because he learned a particular technology by himself... we cannot find the same competence by hiring a 26 years old, with a degree in engineering informatics”* (Digital studio B (MI)).

Artistic capital is also considered a valuable territorial asset in both provinces. According to 13 firms in total, it represents a strong source of attraction for tourists and clients, confirming its importance in the A&F sector, and it also works as marketing tool in other sectors. For example, the owner of CastleRestaurant(PA) points out that *“there is a big artistic patrimony here...this has an influence; we are in an important place that favours me compared to other restaurants located in different places of the town”*. The manager of Softwarehouse(MI) adds that *“working for arts foundations such as the Prada Foundation is a powerful advertising tool that ensures high visibility and attracts other clients”*.

Four firms in both provinces also see artistic capital as a source of creativity and inspiration which continuously stimulates ideas through a series of visual artistic and historical concepts. This aspect emerges in the ICT and Man., as stated by the owner of Digital studio B (MI): *“We often use our Italian origins as a marketing tool. We push our foreign customers to work with us because we let them think that Italian design is the best, but in reality, there is no digital design tradition in Italy. So, initially, I thought this was just a way to catch clients and for a long time, I thought like this...however, some entrepreneurs from the Silicon Valley told me that Italians have a head start compared to other entrepreneurs and this is actually true because, at a subconscious level, we are continuously stimulated by a series of visual artistic historical concepts that surround us that becomes inputs for our work. We all carry inside us, the culture of beauty”*. The manager of SocialInnovationICT(PA) follows: *“Palermo inspires and stimulates less than other places. In Milan, for example, you have much more stimulus but there are other things here, for example, looking at monuments, the history and traditions of this town*

every day has an impact. Walking in the historic centre and looking at amazing historic monuments is a strong source of inspiration”.

In terms of **natural capital**, 10 firms in both provinces also stress the importance that agricultural raw material ('cultivated natural capital'; Cochrane, 2006) plays in improving the quality of their products. This theme emerges in food related industries, with particular emphasis in Palermo, as stated by the owner of CastleRestaurant(PA): *“Mountains and sea give us amazing products; the weather enhances these products...we have a head start in the raw materials and this is not only my opinion; many people think so”.*

Additionally, as previously explained, the lack of support given by local public organizations and the difficulties of accessing bank credit, are seen as strong weaknesses both in Milan and Palermo, although themes related to institutional inefficiencies, mafia, corruption and clientelism emerged strongly in Sicily. Furthermore, all entrepreneurs in both areas complain about too many contradicting and obsolete laws, bureaucracy, and rigidity and this often translates into higher costs for consultancies: *“Since we opened, the law has changed three, four times in different fields, health and safety, work etc. It’s a total uncertainty”* (CountryHotel&Rest(MI)). *“There are too many laws and contrasting with each other...we are continuously obliged to endure costs for consultancies to deal with regulation compliance”* (FoodManu(PA)). Regulation is often rigid and out of date; for example, in the ICT sector, there are no specific contracts able to regulate working from home, flexible working timetables or security issues in co-working spaces: *“I have problems with reporting invoices, even when buying through Amazon”* (HealthICT(PA)).

Finally, although from the interviews conducted it is possible to affirm that territorial capital positively influences firms' performance in both provinces, only 1 firm out of the 26 believes that location is essential. All the other firms in Palermo and Milan have either already explored the possibility to move to other places or positively considered the possibility to move to other places. However, almost one third of the firms would not move because entrepreneurs are attached to their home place. For instance, the owner of JewelleryManu(MI) affirms that *“we want to maintain the production in Italy, even if in some cases it could be convenient to work abroad, but this is my will...the possibility to give work to other companies that have had a lot of*

troubles in the last few years is a big satisfaction; we really care about it” or in Palermo, the owner of CastleRestaurant(PA): *“My firm could be located anywhere and outside Sicily, my business would be even more profitable...however, we are here and we believe in what we are doing”*. This confirms the idea that besides external factors, internal factors such as managerial talent, learning by doing and investments in R&D are still important determinants of firms’ performance, as stressed by the mainstream literature (Griliches, 1998; Bloom and Van Reenen, 2006; Syverson, 2011).

6.4 Territorial capital as a source of competitive advantages: evidence from Milan and Palermo

The qualitative analysis undertaken provided insights of owners’/managers’ views of the way through which territorial capital contributes to firms’ performance in practice, and becomes a source of competitive advantage in the two provinces. In particular, results show that both tangible and intangible assets may often become a source of competitive advantage in terms of cost and/or differentiation, depending on the type of relation existing between firms and territories (direct and/or indirect).

Indirect involuntary relations comprise the generation of positive externalities that mainly bring cost leadership advantages; for example, the existence of strong relational capabilities within the local area promotes cooperation among firms, reducing production and/or distribution costs. Another example is the existence of efficient infrastructures that facilitates firm interchange and reduces transport costs. *Direct and voluntary* relations refer to a spontaneous and conscious exploitation of territorial assets; in the latter case, by purposively using particular resources, for example, agricultural raw materials in food related industries, firms might be able not only to cut their costs, but also to offer unique products/services, gaining differentiation advantages.

In addition, the diverse *mix* of territorial resources embedded in different areas may represent a source of sustainable competitive advantage, as in the Dierickx and Cool (1987) definition. The identification of this *mix*, named territorial capital, can be useful to understand the specific characteristics of each place which are difficult to

reproduce and imitate and which can also be helpful in better justifying firms' location choices.

In brief, the **province of Milan** is a rich source of human capital; it is able to supply skilled employees not only because of its educational system, but also due to the presence of a vibrant competitive environment that plays an important role in training human resources, particularly in traditional sectors. The city is 'trendsetting' and able to attract human resources from other regions and countries, facilitating the recruitment of high/low skilled people.

The province is also characterized by a creative and 'trending' environment which stimulates innovation and contributes to increasing business opportunities. This atmosphere is generated through the organization of numerous events, the existence of a lively competitive environment and networks of relations, continuously creating opportunities of exchange and cross-fertilisation among firms.

Milan also has a good level of bridging social capital, emphasized by the existence of a sense of trust among people. The capability to establish collaborations facilitates the supply of products/services, reduces transport costs and increases opportunities of exchange among firms which also favour innovation. In the A&F sector, relations and collaborations also ensure better control over raw material and environmental sustainability with possible repercussions in terms of firms' image and reputation.

With respect to culture, the local context reflects a good entrepreneurial propensity, 'work oriented' and 'open-minded' identity, whereby clients are able to accept and understand new trends and innovation. Ancient local traditions also seem important in increasing sales in the A&F sector when combined with innovation.

The presence of efficient infrastructures in terms of public transport, airports and other facilities is also an important asset which helps firms in containing transportation costs, also favouring interactions among people. Access to private and public finance is considered difficult, particularly for young entrepreneurs and is not always useful, including the role of public institutions. Moreover, bureaucracy and uncertainty of law, which characterize the Italian system as a whole, increase firms' costs.

The presence of artistic capital, although not comparable with other Italian cities, is also valuable; it has the potential to attract customers and works as a marketing tool

to promote positive Italian stereotypes of fashion and the sense of beauty. It is also a source of inspiration and creativity for firms that use this ‘culture of beauty’ to generate new ideas subconsciously. Natural capital, in the considered sample, does not seem to have a prominent role in firm’s performance, with exception of the A&F sector where easy access to high quality raw materials (‘cultivated natural capital’; Cochrane, 2006) becomes a valuable source of cost/differentiation advantage. Box 6.3 presents an example of operation of territorial capital in Milan, looking at the example of a firm operating in the ICT sector.

Box 6.3: An example of the nature and operation of territorial capital in Milan

The case of Digital studio A (MI)

Being in Milan gives us immediate access to certain customers. Compared to Brescia, where we have the legal office, being in Milan, in this creative sphere, it is more inspiring because many events are organized and in general, more things happen. It is easier getting information, accessing books, courses and workshops etc., and then people who come from Polytechnic of Milan have the approach that we look for. And also, the environment of competitors is wide; we compare ourselves with many competitors; we have friendly relationships and collaborations with them (...) Over the years, we have been collaborating with many companies that do similar things, that have been giving us work to do; we were asked to act as “white label” for them; thus, being in Milan was important (...) The stereotype of Milanese people, work oriented, very fast, hasty with a very practical approach, sets our work rhythm. Other colleagues who work in other cities do not have the same rhythms or working times; they do not have the same deadlines, contacts or prices (...) The fact that Milan is one of the most organized cities definitely helps. I do not believe that in other cities it is so easy to go to work by public transport or by bike. I'm from Brescia and few people use bicycles or public transport there. Here you can also use car-sharing (...) Local institutions are not helpful. The calls for projects by the Chambers of Commerce, or things like that, are very stringent and especially, they are always written by people who have no actual knowledge of the territory and the industry (...) We did not have any type of financing (...) 3 years ago we asked for a loan to buy a car but our request has been rejected even though our financial account was okay. We were told that we were too young as a company (...) It is not essential to stay in Milan but certainly, if we changed place, so many things would change...if we had to move to a smaller city outside Milan, many things would be different even, for example, the fact that there is no public transport to go to work and also less external stimulus. Surely the fact that, among all Italian cities, Milan is the most creative, very close to the world of fashion design helps. It means that we are contacted by companies in other cities just because we are from Milan. Companies from Milan also want to work with creative companies that are located here. So, the best environment for a creative company is certainly Milan.

On the other side, the **province of Palermo** is also able to supply skilled employees thanks to its educational system; however, according to owners/managers, only the A&F sector can benefit from the presence of a vibrating competitive environment where employees can get further experience. In addition, although Sicily is able to attract human resources due to its quality of life in terms of good weather, cheap living and natural surroundings, this is not always any compensation because of brain drain due to low salaries and poor job opportunities.

In terms of creative stimulus of the local context, the situation is very different compared to Milan as the province has a low capacity in promoting opportunities for networking and exchange among firms; only natural and artistic capital, where the region is extremely rich, plays a role in stimulating creativity in the A&F sector, making products and places available that are unique.

Although there are cases of fruitful collaboration, the level of social capital is considered low (Leonardi, 1995) and mainly based on 'bonding' and 'linking' relations; this means that collaborations rely on an immediate connection such as family or friendship or on people in positions of authority (Woolcock, 2004 in Malecki, 2012). Thus, generally, firms show a low propensity to collaborate due to an individualistic entrepreneurial mentality.

Local culture has a diverse effect on firms' performance. Whilst ancient local traditions, traditional celebrations, and tacit knowledge have a positive impact, particularly in the A&F sector, local mentality and customers' habits have a mixed outcome regarding which aspect is considered. In general, the local context seems characterized by a lack of entrepreneurial culture, risk propensity, openness and innovation, which hamper firms' performance.

Artistic and natural capital, in which Sicily is extremely rich, are valuable assets with a strong potential to attract tourists and customers; they both work as a marketing tool and as a source of creativity in the A&F and ICT sectors. However, these assets are not properly valorised by the public administration, neither are they always accessible. Moreover, transport infrastructures are scarce and inefficient and this is considered one of the main weaknesses of the local context which emphasize the negative effect of geographical isolation.

The banking system is also considered inadequate, as is the support given by public institutions; in particular, high bureaucracy, mafia, corruption and clientelism are seen as obstacles to firms' operations. Moreover, entrepreneurs often explain that ineffective and inefficient institutions are one of the main obstacles to the adequate valorisation of Sicilian territorial capital. Box 6.4 presents an example of the operation of territorial capital in Palermo, looking at one firm operating in the A&F sector.

Box 6.4: An example of the nature and operation of territorial capital in Palermo

The case of Hotelbythesea(PA).

My hotel is located in an extraordinary location in the middle of Castellammare gulf, 10 km from the airport, 30 km from Palermo and 50 km from Trapani (...) I select hotel directors personally, and I can say that the Sicilian market has plenty of capable people (...) Tourism has always been a key activity in Sicily and many people that gain experience abroad decide to return here. So, there is no shortage of skills.

Creativity and innovation in the field of tourism is difficult because everything has already been said (...) Of course, I travel all over the world so I can see what others do (...). Sicilian people do not cooperate that much. We have nice relationships with some entrepreneurs but this is driven more by personal relationships rather than a strategic approach; this is a pity. Everyone looks at his own business; everyone is scared that you steal clients. Even the airport does not cooperate adequately with the other facilities around (...).

Traditional celebrations are, more or less, a strong form of client attractiveness. It depends on the way these are advertised, here and abroad. A lot people do not know what happens (...) Sicily is full of cultural attractions. Who comes here is not only interested in swimming in the sea but wants to discover our cultural patrimony which is one of the richest in the world. Culinary traditions, monuments...we are considered the second island in the world to be visited. The mix of things here does not exist in other places (...). Even if we have a lot of opportunities, we are not able to promote tourism and this is mainly caused by the public administration (...) Transport infrastructures are a huge problem. Sicily is far from other markets; so you can reach the island by boat or aeroplane but above all by aeroplane. A part from flight charters, there are very few flights. The air traffic to Sicily is 1/10th of those in the Canary Islands, which are much smaller and a lot less interesting. So, this is the main problem. Even the highway is not good and it facilitates only the people who are very close to their destination (...) Sicilian clients are the worst, not all of them, but low class clients...then bureaucracy and mentality is amazing. People do not work to receive their salary but they look always for something else...if you need a licence, you need 15 signatures and so it means 15 gibbets (...) And then banks take money from here and reinvest it in the north; only those who are strong can receive credit. We have a difficult relationship with banks (...) We have excellent relations with institutions at municipal level because we try to make it clear that our wealth is good for them and vice versa. But even those small local institutions have a lot of problems (...) We are far from markets; there is nothing here to help; you can just help yourself (...) It is obvious that the tourist activity can be done anywhere but each place has its own characteristics and market, and you must adapt to it. I was born here; my father died with this hotel I am attached to it. I also support hundreds of families with this job and this

gratifies me a lot (...) Local policy should intervene in providing better infrastructure, road cleaning services, landscaping, precise rules, valorising our assets such as decorating roads with flowers, facilitating the credit access for entrepreneurs; then we should also think about Mafia...

SECOND PART: QUANTITATIVE VS QUALITATIVE FINDINGS

6.5 Mixed-method analysis

Having shown the nature and operation of territorial capital in the two provinces and how this influences firm performance, this section aims at validating, supplementing and reinterpreting the econometric results at geographical level (North and Centre-South), and at sector level, through the qualitative findings. This challenging exercise, which combines results from two different empirical approaches, is useful to achieve a better understanding of the ways territorial capital affects company performance and to shed more light on the way firms operate, hence adding an additional dimension to the investigation.

The mixed-method analysis here presented is driven by the quantitative findings in terms of positive and significant, not significant, negative and significant econometric variables.⁵⁸ Overall, the mixed-method analysis supports the assumption that diverse combinations of territorial resources drive firms' performance across different geographical areas and sectors, although the qualitative results are not always consistent with the quantitative ones. However, in the econometric estimations, higher regional and firms' heterogeneity could explain the difficulty in finding a clearer impact of regional capital on performance. Additionally, the qualitative analysis, although based on a small and not representative sample of firms, is able to capture the multidimensionality and complexity of the investigated phenomenon better and considers further aspects which were not quantified or even recognized *a priori*.

⁵⁸ The mixed-method analysis considers the most conservative set of quantitative results which use robust standard error clustered at regional level.

6.5.1 Quantitative vs Qualitative results in the North of Italy

The econometric analysis showed that a set of tangible and intangible assets positively influence the productivity of firms located in the North. These assets include the regional propensity to create, captured by *factor Cre*, representing the capability to produce patents, new firms and artistic events, the number of graduates in science and technology, and people employed in R&D. The availability of private financial capital and the presence of transport infrastructure were also found to have a positive and significant impact in the North.⁵⁹ These results are validated and further extended through the presentation of the main themes which emerged from the interviews conducted in Milan. Table 6.1 (pp: 174-175) shows, on the left side, the econometric results and, on the right side, the main interview themes and number of responses.

⁵⁹ The presence of artistic and natural capital has significant and negative impact and will be discussed later in this section

Table 6.1: Quantitative vs Qualitative results in the North of Italy

| QUANTITATIVE RESULTS North of Italy (8 regions) | | QUALITATIVE RESULTS (Milan) | | | |
|---|---|--|-------------------|----------------------------|---------------------------------------|
| Proxy | | Main themes in Milan and Local context effect on firms' performance | Positive Response | Negative/ Neutral Response | Highest number of responses by sector |
| Creativity | Significant/Positive Factor Cre: <i>Graduates in science and technology subjects (%)</i> ; <i>People employed in R&D (%)</i> ; <i>Patents Registered (%)</i> ; <i>New Companies/Resident Population (10.000 people)</i> ; <i>Diffusion of Theatre and Music Performances (%)</i> | ●The n. of events organized in town and the existence of a 'trendsetting atmosphere' stimulate the generation of new ideas and create new business opportunities | 7 | | All |
| | | ●A vibrant competitive environment stimulate the generation of new ideas | 4 | | All |
| | | ●The existence of relational capital and the proximity of innovative firms stimulate the generation of new ideas and create new business opportunities | 4 | | ICT and Man |
| Infrastructure | Significant/Positive <i>Railway Length(Km)/Terrestrial area (Km2) (%)</i> | ●The good quality of transport Infrastructures promotes exchange, decreases transport cost | 11 | | All |
| | | ●The good quality of digital Infrastructures promotes exchange, decreases transport cost. However there is a digital divide between Milan and towns around Milan that must be overcome | 4 | 2 | All and ICT |
| Financial Capital | Significant/Positive <i>Bank Credit As % of regional GDP</i> | ●Access to credit is difficult in particular for young entrepreneurs. This hampers firms' growth | 3 | 5 | All |
| | | ●No all entrepreneurs need access to credit | | 3 | All |
| | | ●Access to public finance is difficult and calls are not well designed | 1 | 2 | ICT |

As Table 6.1 shows, consistent with the econometric analysis, the presence of **creative capital** is considered by most interviewees as an important source of firms' performance in Milan. For example, the organization of numerous events inspires the generation of ideas and promotes new business opportunities. The qualitative analysis also supplements this result, showing how creative capital can be driven by other territorial factors that are not captured by the proxy used, such as the existence of a 'trendsetting' atmosphere, a stimulating competitive environment or the relational capital.

Another important aspect emerged from the qualitative analysis, which validates and supplements the econometric results for the North, is represented by the presence of adequate **transport and digital infrastructure**. However, while the quantitative analysis focuses on the 'Railway length per km²', the thematic analysis highlights how additional factors such as the co-existence of efficient public transport, digital networks, and air connections facilitate interchanges and reduce transport costs.

With respect to **financial capital**, the econometric analysis showed that the availability of private credit positively affects firms' performance in the North of Italy. Although most interviewed owners/managers agreed on the importance of finance, the qualitative analysis mainly highlights the perception of firms on the ineffectiveness of the banking system in supporting businesses. The qualitative procedure also considers the access to public finance, a dimension not considered in the quantitative analysis, highlighting its minimal influence on firms' performance due to the complex and inadequate design of public calls. However, these results could be affected by the small dimension and recent constitution of the few firms interviewed that, for this reason, may have more difficulty in obtaining private or public funding compared to larger and more established firms.

Having discussed how the qualitative analysis validates and supplements the significant and positive variables, results from the interviews also demonstrate that owners/managers in Milan can benefit from additional advantages. For example, while the econometric analysis did not find a significant effect for '**cognitivity/intellectual capital**' (factor 'Cog') in the North, qualitative data highlight how this asset favours firms in Milan. This divergence depends not only on the high regional heterogeneity

considered in the econometric analysis, but also on the limits of the proxy used to quantify cognitive capital, which is mainly linked to the acquisition of formal education and internet skills. Conversely, owners/managers acknowledge the fact that the availability of skilled employees is not only linked to the role of local universities and schools. For example, Milan is considered an attractive place for skilled workers by the vast majority of firms, where it is easy to recruit human resources in all sectors. The multicultural environment and the presence of immigrants offered by the province are also considered an asset, as well as the presence of a stimulating and challenging competitive environment which increases the possibility of hiring people who have developed their skills working for similar companies. This ensures a diversified supply of human capital in the province, giving the possibility to contain recruitment and training costs. Moreover, it is also possible that the insignificant econometric effect captures oversupply, as emphasized by the owner of (CentralHotel(MI)): *“The supply of workers is huge; I don’t have to ask for people; I have to turn them away”* in line with what has been discussed in section 5.7.

With respect to **social capital**, the econometric analysis did not find a positive effect of ‘factor *SocCap*’ upon productivity of firms in the North, whereas the qualitative analysis shows how this asset favours firms in Milan. In particular, relational capital is considered an important asset to offer superior products/services, facilitate production/sales, promote new business opportunities and reduce transportation costs by the majority of the interviewees in all sectors because of formal or informal ‘district effects’. In addition, all firms in the A&F sector stress the importance of relational capital in ensuring better control over raw material quality and in promoting environmental sustainability.

A further territorial feature that positively affects firms in Milan can be found in the existence of a widespread, positive, open-minded and work-oriented **culture**. In the econometric analysis, culture was measured as percentage of religious people to capture the dimension of local ‘belief’. This variable was found to be negatively associated to ‘factor *Cre*’ that represent the regional creativity. Thus, due to multicollinearity problems, it was not possible to establish a direct link between culture and company productivity rather than an indirect negative relationship between the presence of religious people and the regional creative turmoil. In this

regard, owners/managers explain that local culture matters in different ways for their performances; for example, ancient traditions are important as long as reinterpreted in an innovative way. Open-minded clients, work oriented employees positively affect businesses, influencing the supply of products and services and favouring a job oriented culture. Moreover, entrepreneurial culture is spread and this helps firms in being more dynamic and competitive, attracting clients and potential partners that are located outside the city.

Lastly the qualitative analysis allows unpacking the contribution of **institutional capital** to firms' performance. In the econometric estimations, institutions were proxied using the number of violent crimes per 10,000 people to capture the importance of the rule of law. This variable was found to be negatively associated to the regional social capital (factor *SocCap*). Thus, it was not possible to establish a direct link between institutions and firms' performance rather than an indirect negative relationship between crimes and the presence of social capital. The qualitative procedures provide additional information as the vast majority of firms highlight the lack of adequate support offered by local public organizations due to their poor attention towards firms' needs as well as inadequate law and regulations with negative repercussions on business performance.

Coefficients of **natural** and **artistic** capital have a significant and negative sign upon productivity of firms located in the North. The qualitative analysis shows how the natural environment such as the presence of lakes, parks and mountains is not seen as an important asset by the majority of firms,⁶⁰ without any evidence of its negative role. The result of the econometric analysis may depend on the proxy used ('percentage of important natural protected site') which may only partially capture the negative relation between environmental regulations and productivity (Greenstone *et al.*, 2012; Dechezleprêtre and Sato, 2014). On the other hand, the qualitative analysis highlights the importance of local agricultural raw materials ('cultivated natural capital'; Cochrane, 2006), which provide better products in the A&F sector, a dimension not considered in the quantitative analysis.

⁶⁰ Most of the interviewed businesses are located inside the city and this could explain the neutral influence of this asset.

With respect to the artistic capital, in contrast with the econometric results, the qualitative analysis demonstrates how the presence of artistic capital has a potential to attract customers; it also inspires firms' creativity and works as a marketing tool. Only the manager of Softwarehouse(MI) highlighted the potential negative impact of artistic capital on businesses, claiming that the presence of monuments may restrain the development of infrastructure as it often prevents the installation of internet fibre. This can have potential negative repercussions on productivity.

6.5.2 Quantitative vs Qualitative results in the South of Italy

The quantitative analysis shows that all tangible and intangible territorial resources, with exception of artistic and financial capital,⁶¹ have a positive influence on the productivity of firms located in the Centre-South of Italy. These results are further investigated and extended through the presentation of the main themes identified from interviews in Palermo. Table 6.2 (pp: 180-181) shows, on the left side, the econometric results and, on the right side, the main interview themes and number of responses.

⁶¹ The coefficients of artistic and financial capital are not significant when using robust standard errors clustered at regional level; they are respectively positive and negative when using robust standard errors clustered at firm level.

Table 6.2: Quantitative vs Qualitative results in the South of Italy

| | QUANTITATIVE RESULTS (Centre-South 12 regions) | QUALITATIVE RESULTS (Palermo) | | | |
|---------------------------------------|---|--|----------------------|----------------------------|---|
| | Proxy | Main themes in Palermo and Local context effect on firms' performance | Positive Response | Negative/ Neutral Response | Highest number of responses by sector |
| Creativity | Significant/Positive Factor Cre: <i>Graduates in science and technology subjects (%); People employed in R&D (%); Patents Registered (%); New Companies/Resident Population (10.000 people); Diffusion of Theatre and Music Performances (%)</i> | ●Local context does not have any role in stimulating creativity ●Cultural characteristics such as “the art of sorting yourself” (l’arte di arrangiarsi’) plays a role in pushing firms’ creativity | 2 | 7 | ICT and Man ICT |
| Cognitive/ Intellectual Capital | Significant/Positive Factor Cog: <i>First and second stage of tertiary education (%); Households using internet (%)</i> | ●The local context is an attractive place for skilled employees due to high quality of life, low living costs, good weather and bio diversity of the natural environment. This increases the supply of skilled employees and reduces training and recruitment costs. ● The local context is not able to retain or attract employees as Job opportunities and salaries are not competitive ●Local competitors play an important role in training employees. This increases the supply of skilled employees/reduces training and recruitment costs ●Tacit knowledge plays a role in training employees. ●The local education system is effective in training employees | 3 1 1 4 | 3 1 8 | All ICT and Man A&F A&F All |
| Social Capital | Significant/Positive Factor SocCap: <i>Free-of-charge activity for volunteer groups or associations (%); Money given to associations (%); People Carrying out Social Activity (%)</i> | ● Collaboration with local firms is important to offer better products/services, to facilitate production/sales, to reduce transportation costs and make access to public funds easier. It also gives support to the local economy ●Trust improves relationships with firm's clients, providers, employees but it is linked with direct personal relations (bonding social capital) ●Local context lacks of a collaborative culture caused by an individualistic entrepreneurial mentality which hampers firms' growth ●Local context is characterized by a low level of civic sense which hampers firms' growth | 9 2 | 2 7 2 | All All All All |
| Infrastructure | Significant/Positive <i>Railway Length(Km)/Terrestrial area (Km2) (%)</i> | ●Lack and backwardness of infrastructures hamper exchange and increase transport costs ●Digital infrastructures are considered decent but not at the same level of other European cities | 3 2 | 12 3 | All ICT |

| | | | | |
|-----------------------|---|--|-----------------------------|---|
| Natural Capital | Significant/Positive <i>Important natural sites (%)</i> | <ul style="list-style-type: none"> •The natural environment attracts customers increasing firms' sales •Natural environment enhances quality of life bringing benefits to entrepreneurs and employees and attracts human resources from other regions •Natural environment and natural resources stimulate the generation of new ideas •Agricultural raw materials quality is important to offer better products. It increases firms' growth •Natural resources are not always accessible; this increases firms' costs | 5 4 3 5 2 | A&F All A&F Food related sectors |
| Cultural Capital | n/a <i>Religious People (%)</i> | <ul style="list-style-type: none"> •Ancient Traditions and Cultural heritage attract customers increasing firms' sales •Traditional celebrations attract customers increasing firms' sales. However they should be properly planned and advertised •Clients' culture/trends and local habits show, in general, a closed mentality, reluctant to innovation and low cost oriented. This influences the supply of products and services •Local context is characterized by a lack of entrepreneurial culture and friction to innovation | 4 2 3 6 | A&F A&F All All |
| Artistic Capital | Not Significant <i>Visitors public institutes of antiquities and art</i> | <ul style="list-style-type: none"> •Artistic capital has a potential to attract customers and works as marketing tool •Artistic Capital stimulates the generation of new ideas •Artistic capital is not properly valorised and accessible | 6 2 5 | A&F and ICT ICT and MAN All |
| Institutional Capital | n/a <i>n.of violent crimes (per 10.000 people)</i> | <ul style="list-style-type: none"> •Lack of adequate support offered by local public organization due inefficiencies, bureaucracy, slow procedures increases firms' costs and reduces productivity •The problem of 'mafia protection bribe' (called pizzo) is not properly addressed by local institutions. It increases firms' costs and hamper firms' growth. •Local institutions are characterized by corruption and clientelism. This increases firms' costs •Internship programmes sponsored by universities and local authorities facilitate firms in recruiting employees •Too many and contradicting laws, bureaucracy and rigidity are negative for business activities as increase firms' costs | 4 12 5 3 4 7 | All A&F and ICT A&F and ICT A&F and ICT All |
| Financial Capital | Not Significant <i>Bank Credit As % of regional GDP</i> | <ul style="list-style-type: none"> •The banking system is ineffective and inefficient and hampers firms' growth. Sometimes it supports a corrupted system •Access to public finance is not always beneficial to firms | 8 2 4 | - - |

Note:

Positive Response (P)=The local context helps; Negative/Neutral Response (N)=The local context does not help (neutral or negative role)

If firms give contrasting opinions about the same issue, a response to P and N was assigned at the same time

Quantitative results are based on robust standard errors clustered at regional level

Consistent with the econometric results, owners/managers acknowledge the importance of intangible assets such as creative, cognitive/intellectual capital and social capital, although they highlight several weaknesses and disadvantages and the minor contribution of the local context, compared to Milan. This divergence could be explained by the high regional heterogeneity of the econometric analysis as the Centre-South group includes very diverse regions such as Tuscany and Sicily, under the same category. Another explanation could be that regions located in the Centre-South are slowly catching up to the performance levels of the most industrialized northern regions and therefore, the effect produced by increments in such resources may lead to higher increments of performance compared to the North.

For example, in terms of **creative capital**, while the econometric analysis shows a positive and significant role of *factor Cre* in the Centre-South regions with a higher effect compared to the North, seven firms highlight how the province of Palermo is not always capable of stimulating new ideas and promote innovation. The relative weakness of creative capital is seen as a major obstacle to firms' performance; this is consistent with the idea that building creative capital in Palermo would be highly beneficial for the business environment a result that is in line with what has been discussed in section 5.7. With respect to the endowment of **cognitive/intellectual capital**, the econometric estimations show a positive effect of *factor Cog* in the Centre-South. Qualitative interviews are in line with this result, although the positive contribution of the local context is less strongly emphasized compared to Milan. In terms of **social capital**, the econometric analysis finds a positive and significant role for *factor Soc* in the Centre-South. Consistently, nine firms highlight the importance of relational capital in offering superior products/services, facilitating production/sales and reducing transportation costs. However, an important characteristic of territorial capital in Palermo is represented by the relative weakness of 'bridging social capital', compared to Milan, the lack of collaborative culture caused by an individualistic entrepreneurial mentality which hampers the establishment of profitable relations in many cases. Again the relative weakness of social capital is seen as a major obstacle to firms' performance; therefore strengthening social capital in this province would likely have stronger effect upon firms in Palermo compared to Milan consistent with what has been discussed in section 5.7.

With respect to **culture**, as previously explained, the quantitative analysis due to the multicollinearity issue does not allow the investigation of its direct role upon firms' performance, other than finding a negative relationship between the presence of religious people and the creative turmoil. Conversely, results from interviews show that culture matters in Palermo in different ways. For example, the existence of 'cultural heritage' attracts customers, particularly in the A&F sector. However, the local habits and mindset of people show a generally closed mentality, resistant to innovation.

In terms of **transport infrastructure**, the econometric analysis finds a positive and significant coefficient in Centre-South, although the coefficient is lower compared to North. From the interviews, it emerges that the vast majority of firms are negatively affected by the backwardness of the Sicilian infrastructure, both in terms of connections within the region and with the rest of the country. This factor amplifies the problem of geographical isolation, translating into higher costs for firms, both in terms of transport costs and loss of business opportunity. In the quantitative analysis the lower coefficient of transport infrastructure compared to the North could be explained by inefficiencies, waste of economic resources and lack of capacity to build infrastructure. These would reduce the positive effect that a higher level of infrastructure would otherwise lead to.

The qualitative analysis also validates the econometric estimations which show a positive and significant effect of the **natural capital** in the Centre-South. However, the proxy used (% of protected natural sites) does not fully capture the multidimensionality of this asset. Additional aspects such as the presence of mountains, sea, and good weather in Palermo have the potential to attract tourists and customers. The natural environment also has an impact on the quality of life, which indirectly brings benefits to entrepreneurs and employees. This aspect, as previously explained, also plays a role in attracting and retaining valuable human resources.

In terms of **financial capital**, the econometric analysis does not show a significant impact on firms' productivity in the Centre-South. Consistently, the qualitative analysis highlights how, according to eight firms, the banking system does not support business. Two entrepreneurs also believe that banks contribute to supporting a

corrupt system; this finding could potentially explain the negative coefficient of financial capital when using robust standard error at firm level: *"Banks are not close to entrepreneurs, especially in Sicily; they collect a huge amount of deposits here, but then they lend to people that have the 'right connections'".*⁶² *Thus entrepreneurs that just want to do their job without establishing those 'connections' are excluded"* (Threehotels(PA)). A few firms in Palermo also had the opportunity to get access to public finance, which was beneficial in some cases.

In relation to the **artistic capital**, the econometric analysis shows a significant and positive coefficient in the Centre-South only when using robust standard errors clustered at firm level, whereas the coefficient was not significant when using standard errors at regional level. Results from the interviews show, as happens in Milan, the positive value of artistic capital. However, five firms highlight the problem of inadequate valorisation and accessibility of artistic capital and this restrain the positive value of this asset not only in the A&F sector, but also in other sectors. For example, the manager of FurnitureManu(PA), which produces furniture for hotels, believes that inadequate valorisation of artistic capital hampers the development of the tourist sector with negative repercussions on its business: *"We produce furniture for hotels as well...I believe that Sicilian artistic patrimony is priceless but it is not considered by the local government; it is in decay"*.

Another problematic aspect of the Sicilian economic environment which emerges from the interviews is the lack of adequate support offered by local public organizations in supporting firms, due to inefficiencies, bureaucracy and slow procedures (**institutional capital**). The well-known problems created by the mafia, such as 'protection bribe', corruption and clientelism ('linking social capital'), affect the functioning of the local institutions and severely hamper business. The econometric analysis could not directly capture this phenomenon as the impact of institutions (violent crimes per 10,000 people) is part of the Social Capital factor (*SocCap*). However, in line with the qualitative interview, the correlation between social capital and violent crime is negative, as one would expect.

⁶² The entrepreneur refers to the situation of clientelism.

6.5.3 Quantitative vs Qualitative results: the effect of territorial capital at sector level

After having described the nature and operation of territorial capital at geographical level, this section combines the two methods to investigate the effect of territorial capital across different economic sectors. The quantitative analysis showed that, when controlling for sector heterogeneity, different mixes of territorial assets are needed to boost performance in different industries. These results are validated and further extended through the main themes that emerged from interviews in the A&F, Man. and ICT sectors in the two provinces.

Overall, the mixed method analysis supports the assumption that diverse combinations of territorial resources drive firms' performance across different sectors. However, by combining the two methods, it is difficult to predetermine with clarity what resources influence performance in different industries, with the exception of the A&F sector where both methods are consistent in showing the importance of natural and artistic resources.

For example, while regression analysis found a positive and significant coefficient of creative capital only in the manufacturing sector, the qualitative analysis explains how local creativity also influences firms in the ICT and A&F sectors. There are in fact factors that might not be fully captured by the quantitative proxy but that are important for performance. For instance, the existence of a vibrant competitive environment, the strength of relational capital as well as the presence of artistic capital may stimulate the generation of new ideas in the ICT sector, while the endowment of natural capital, in terms of mountains, sea, landscape, good weather and agricultural resources appears to inspire creativity in the A&F sector.

In a similar way, entrepreneurs highlight the importance of intellectual/cognitive capital whose proxy was statistically significant in the majority of sectors covered by the qualitative investigation, with the only exception being the manufacturing industry. However, the heterogeneity of the manufacturing sector might prevent a clear identification of the effect of this particular variable. Conversely, the qualitative analysis highlights how the local context may contribute in providing valuable human resources in the manufacturing sector due to factors not captured by the proxy used, as in the case of the existence of a vibrant competitive environment which increases

the possibility of hiring people who have developed their skills working for similar companies.

Social capital is also considered an important asset in the three industries, whereas the positive econometric evidence was found only in the manufacturing sector. However, the qualitative analysis shows how local collaboration ensures the provision of high quality of raw materials and environmental sustainability in the A&F sector with positive consequences in terms of sales growth and reputation. It also stimulates the generation of new ideas and creates new business opportunities in the ICT sector.

Additionally, while the qualitative analysis validates the positive and significant coefficients of natural and artistic capital in the A&F sector, owners/managers explain how the presence of monuments may also influence ICT and manufacturing firms, by inspiring the generation of new ideas and working as a marketing tool to promote 'Made in Italy' products and services.

Whereas the proxy used to quantify transport infrastructure considering the length of railways was found positive and significant in the manufacturing sector, firms in the ICT and A&F sectors also discuss the importance of other facilities not captured by the proxy. These include air connections, ports, road conditions, and digital networks which contribute to decreasing transport costs and stimulating exchange.

Hence, by considering additional aspects that were not captured by proxies, the qualitative analysis shows how the endowment of territorial resources, both tangible and intangible, positively affects firms, with differing intensity and mechanisms depending on sectors. This means that all resources are potentially useful in all industries, whereas their influence has a different importance and acts with different processes in each sector. For instance, the endowment of 'inherited resources' such as natural, cultural and artistic heritage may have an immediate impact upon A&F firms by attracting customers; however, these assets may ultimately influence ICT and Man. firms by attracting skilled human resources from other regions, stimulating entrepreneurial creativity, and acting as a marketing tool in promoting the image of 'Made in Italy' products/services.

6.6 Conclusions

The mixed-method approach integrated the econometric results with the findings from the qualitative study conducted with a sample of firm's owners/managers in the provinces of Milan and Palermo, enriching the analysis in a number of ways.

Firstly, the qualitative procedure explained *how* territorial capital influences firms, from the perspective of entrepreneurs themselves. In particular, results showed that both tangible and intangible assets may often become a source of competitive advantage in terms of cost and/or differentiation, depending on the type of relation existing between firms and territories, which can be direct and/or indirect. Additionally, the simultaneous existence and interconnections of these assets may represent a source of sustainable competitive advantage (Dierickx and Cool, 1987). The identification of this *mix*, named territorial capital, can be critical to understand reasons for persistent geographical disparities as well as to identify strengths, weaknesses and the unexploited potential of places, and can also be helpful in better justifying firms' location choices.

Secondly, the qualitative analysis enabled a study of the nature and operation of territorial capital at local level, confirming the intuition that its impact varies across different geographical areas and sectors. The qualitative analysis allowed a more in-depth exploration of different aspects which have been only partially measured by proxies or not recognized *a priori*. These include, among others, the importance of people's mentality, the existence of favourable climatic conditions, or inefficiencies caused by institutional bureaucracy, corruption and clientelism.

Thirdly, and more specifically, it showed that firms, in both provinces, are influenced by a different mix of assets which characterize each area; for example, companies in Milan can benefit from the existence of a stimulating creative atmosphere, from the capability of the local context to provide and attract valuable intellectual capital, from the widespread open-minded culture, strong collaborative environment and the presence of efficient transport/digital infrastructure. In Palermo, apart from the good availability of intellectual capital, the value of natural, cultural and artistic heritage is very much emphasized by the entrepreneurs,

particularly in the tourist sector.⁶³ However, a weak entrepreneurial culture, lower propensity to establish collaborations and few entrepreneurial stimuli arising from the local context, together with the absence of efficient transport infrastructure, were identified as important constraints for firms' performance. Formal institutions (including public entities, laws and regulations) and their functioning seemed not to vary significantly between the North and the South. The majority of entrepreneurs considered these as not supportive of firms' performance; however, in Palermo, problems relating to institutional inefficiencies, mafia and corruption emerged much more strongly from the interviews, emphasizing their negative impact. Ineffective and inefficient institutions are also considered as one of the main obstacles for the adequate valorisation of Sicilian territorial capital.

The fact that both tangible and intangible resources are important to firms' performance, allows to build on the idea of Fahy (2002) and reclassify resources as either 'inherited basic resources' (such as cultural, natural and artistic heritage) or 'created advanced resources' (or 'capabilities'), produced by long-term investment. While the province of Palermo has been blessed with a rich endowment of 'inherited resources', more 'advanced resources' such as creative, relational capital and the capability to build efficient infrastructure strongly represent a source of competitive advantage in Milan. Hence, it is the thesis view that long-term investment in advanced resources and 'capabilities' are needed to fully realize the potential of the province of Palermo.

Unpacking the multidimensionality of territorial capital through an in-depth analysis also enabled the research to gain additional information about its impact at sector level. In particular, the analysis showed how the process through which territorial capital affects firms often differs across industries; for example, the presence of artistic capital plays an important role in attracting customers in the A&F sector, while it may work as a marketing tool and source of inspiration in the ICT and Man. sectors. This means that valuable resources which are important drivers of

⁶³ The presence of inherited resources is particularly important in the A&F sector but also in other sectors, for example, in the case of ICT companies that develop IT solutions to valorise the Sicilian cultural and artistic heritage.

performance in particular sectors may be potentially useful in other industries, although their influence is variable and acts through different processes.

In addition, evidence from the interviews showed that, in line with endogenous development theory, the identification of the importance of territorial capital and its exploitation has the potential to generate non-economic values such as environmental sustainability, cultural heritage maintenance and the development of a feeling of local pride (Vanclay, 2011). For example, A&F firms which select suppliers locally by exploiting the strength of their relational capital are able not only to increase the quality of their products, but also to reduce environmental pollution. Other companies which, for example, take advantage of the existing ancient traditions to attract clients, favour the maintenance of cultural heritage that, according to Throsby (1999), is crucial for long-term sustainability, due to the provision of a sense of identity. Some entrepreneurs are also proud to contribute through their activity to the development of the local area and this is one of the reasons that they will not move their firms towards more favourable locations, as many expressed in the interviews.

Chapter 7: Conclusion

7.1 Research summary

This research has explored the concept of territorial capital which refers to the set of resources or assets that, by accumulating over time in different forms of capital, constitute the basis for local endogenous development in each city and region (OECD, 2001; Camagni, 2008; European Union, 2011). More specifically, building on the idea that factors of competitiveness and development can be found within territories, this study considered different tangible and intangible components of territorial capital (intellectual/cognitive capital; creative capital, social capital; cultural capital; institutional capital; natural capital; artistic capital; financial capital and infrastructure) and investigated their impact upon the performance of Italian firms.

The theory of territorial capital is innovative and powerful as it focuses on the co-existence of different assets within local areas, providing the basis for a new holistic approach. Hence, the main idea behind this research is that firms' performance is influenced by a *mix* of assets which characterize the specificity of each place and may represent a source of sustainable competitive advantage.

The methodological framework was based on the analysis of quantitative and qualitative data, following a mixed-method nested strategy (Creswell, 2003); this creative design followed pragmatic considerations rather than any dogmatic adherence to the qualitative or quantitative creeds. In particular, the econometric analysis aimed at investigating whether different territorial assets, accumulated across Italian regions, play a role upon firms' productivity. It considered a sample of 91,652 firms, operating in 12 different economic sectors, across 20 Italian regions.

The qualitative procedure was based on 26 semi-structured interviews conducted with a sample of firms' owners/managers and was used to integrate and expand the econometric results. This helped in exploring the multidimensionality of territorial capital in more depth which was only partially captured by the quantitative analysis; it also enabled explanation of the mechanisms and processes through which territorial capital, in practice, influence firms in two different provinces (Milan and Palermo) and in three sectors (A&F, ICT and Man.).

7.2 Main results

The main question that this research sought to answer is: *Does territorial capital contribute to firm performance and how?* The mixed-method analysis, based on triangulation of quantitative and qualitative data, clearly demonstrated that territories influence the way in which firms work, contributing to their productivity and becoming a source of economic advantages and/or disadvantages. More specifically, it is possible to summarize the overall findings by providing answers to the research sub-questions set up in the methodological framework, as follows:

Rq1) What territorial resources drive performance of Italian firms? (Quantitative analysis)

Considering the whole sample of Italian firms selected for the econometric analysis, the regional capability to create and innovate, the presence of transport infrastructure and the availability of financial resources appear to be the most important territorial resources to firms' productivity.⁶⁴ The positive effect of aspects such as creativity and infrastructure, existing within regions, supports the theoretical approach of Camagni and Capello (2013), who stress the importance of territorial assets next to the traditional inputs of labour and capital.

Results for the whole sample also provide empirical evidence to Hypothesis 1 (*H1: All else being equal, firms' productivity performance is positively related to the total endowment of territorial capital. This highlights the importance of the co-existence of both tangible and intangible territorial assets*), showing that both tangible and intangible territorial assets drive performance of Italian firms. This finding is also consistent with the qualitative investigation where firms' owner-managers, in the specific cases of Milan and Palermo, widely discussed the importance of both tangible and intangible resources upon their business performance.

⁶⁴ These results are the most conservative as based on estimations using robust standard errors clustered at regional level. The presence of social capital is also positive and significant when using robust standard errors at firm level.

Rq2) How do territorial resources influence firm performance? (Qualitative analysis)

The qualitative analysis helped in explaining the mechanisms through which, according to the owners/managers' experiences, territorial capital contributes to firms' performance showing that territorial assets may represent a source of cost/differentiation advantage. According to the Resource Based View, firms develop competitive advantages when they exploit valuable, rare, not imitable and not substitutable resources (Barney, 1991). From the analysis performed, it is possible to affirm, that in most cases, territorial resources are *valuable*; they make economic activities more efficient compared with other places and contribute to the generation of cost and differentiation advantages.

More specifically, the qualitative analysis explained *how* local assets may positively affect firms, thanks to direct or indirect relations. *Indirect involuntary* relations consist in the generation of positive externalities (*territorial spillovers*) that mainly bring cost leadership advantages. For example, the existence of strong relational capabilities within the local area promotes cooperation among firms, reducing production and/or distribution costs; another example consists in the existence of efficient infrastructures that facilitate firm interchange and reduce transport costs.

The second type of relationship is *direct* and *voluntary* and refers to a spontaneous and conscious exploitation of territorial assets. In fact, territorial capital might acquire an economic value when transformed into marketable products (Camagni, 2008), becoming a direct source of economic advantage. Hence, firms that purposively mobilize particular resources (for example, agricultural raw materials in food related industries) may be not only able to cut their costs, but also to offer 'unique' products/services, gaining differentiation advantages.

In general, territorial resources are also *not imitable* as they develop, thanks to unique historical conditions, casual ambiguity or complex social phenomena (Barney, 1991). However, as seen in 3.4.1, it is not possible to clearly affirm whether all resources are also *rare* (they cannot be owned by a large number of competitors) or not *substitutable* (they are not equivalent to any other resource) (Barney, 1991). For

instance, ancient monuments cannot be recreated/imitated but could be substituted by other types of artistic capital (for example, the Coliseum vs. the Eiffel Tower).

Nevertheless, switching the attention from *individual* resources to the *co-existence* and *mix* of these resources, it is possible to identify territorial characteristics that are unique, rare and not easily found in any other place that may represent a source of *sustainable competitive advantage* (Dierickx and Cool, 1987). Territorial assets not only accumulate in the course of several generations, such as in the case of tacit knowledge and cultural capital, but also building asset stocks from scratch can be very difficult as *“adding increments of an existing stock of assets is facilitated by possessing high level of that stock”* (Dierickx and Cool, 1987: 5). The qualitative analysis showed, for example, how elements of territorial capital interact with each other; for instance, relational capital contributes to developing creative capital or culture influences human capital and so on. Additionally, this process of accumulation is stochastic and discontinuous rather than deterministic and continuous, making it difficult to identify and control relevant variables (Dierickx and Cool, 1987).

In this regard, a systematic and in-depth analysis at geographical level can help firms in identifying possible sources of sustainable competitive advantage residing in the co-existence of valuable territorial assets which are unique and difficult to imitate. For example, firms in Milan gain benefits from the simultaneous presence of efficient transport/digital infrastructure, from the existence of a stimulating creative atmosphere and intellectual capital, widespread open-minded culture and strong collaborative environment. At the same time, in Palermo, it is also possible to identify a mix of valuable territorial resources which is precious and unique. In particular, apart from the good availability of intellectual capital similar to Milan, the value of natural, cultural and artistic heritage is very much emphasized in this province, particularly in the tourist sector. However, weak entrepreneurial culture, lower propensity in establishing collaboration, and few stimuli arising from the local context, together with the absence of efficient transport infrastructure, are considered an important constraint upon firms' performance. Therefore, the recognition and identification of the nature of territorial capital in different areas can also be useful to understand the reasons for persistent geographical disparities as well as to identify strengths,

weaknesses and the unexploited potential of places, which can also be helpful in better justifying firms' location choices.

Another important finding, according to the vast majority of firms interviewed both in Palermo and Milan, is that location is not the essential factor in understanding business performance. This means that internal resources such as managerial talent, learning by doing, and investment in innovation can still be considered as key factors in firms' success, confirming the idea of Vaessen (1993,) and Hoogstra and Van Dijk, who state: *"there are no such things as strong or weak locations but only strong and weak firms"* (2004: 183). Nevertheless, it is undeniable that the presence of high quality territorial resources has a strong influence in facilitating successful cases. Thus, it could be argued that by comparing firms in the same industry within the same territory, internal resources may certainly represent the main discriminant for different levels of performance, while comparing firms in the same industry across different territories, territorial factors may also be important in explaining those divergences.

Rq3) What territorial resources drive firms' performance across different geographical areas and economic sectors? (Quantitative and Qualitative analysis)

The mixed-method analysis confirmed the intuition that different assets drive performance across diverse geographical areas, although results depend on the selected geographical unit. For example, the econometric analysis illustrated that intangible forms of capital, such as intellectual, creative, and social capital, have a highly important impact upon the productivity of firms located in the South-Centre of Italy, whilst infrastructure and financial capital have a higher importance in North, partially rejecting Hypothesis 2 (*H2: All else being equal, the impact of territorial capital in the Northern regions is stronger compared to the rest of the country*). As explained in 5.7, this is surprising, given that the North of Italy is the most industrialized, creative and dynamic area in the country with its higher concentration of innovative activities. However, in the econometric analysis, higher regional and firm heterogeneity could explain the difficulty in finding a clearer impact of regional capital on performance. Including heterogeneous regions such as Val D'Aosta and Lombardia (North) or Sicily and Tuscany (Centre-South) in the same group does not permit a full understanding of the impact of territorial capital at the local level.

The qualitative procedure overcame this limitation by studying the different nature and operation of territorial capital within specific local areas, comparing two provinces in the North and South of Italy (Milan and Palermo), thus capturing additional aspects that could not have been quantified by the used proxies. This explained, for instance, how the coexistence of different intangible forms of capital, such as the presence of a dynamic and creative environment and collaborative and open-minded culture, favours firms in Milan much more than in Palermo; the natural environment positively contributes to firms' performance in Palermo, whilst the infrastructure endowment has a higher importance in Milan.

The qualitative analysis also found that formal institutions, including public entities, laws and regulations and their functioning, seem not to vary significantly between the North and the South: they are considered by the majority of entrepreneurs, under present conditions, not conclusive to improving firms' performance. However, in Palermo, themes related to institutional inefficiencies, mafia and corruption emerged much more strongly, emphasizing their negative impact. Ineffective and inefficient institutions are also considered as one of the main obstacles to the adequate valorisation of territorial capital in this province.

The analysis at geographical level is particularly useful to identify possible sources of firms' location advantage; yet, by comparing the quantitative and qualitative results, the use of specific case studies which neutralize problems related to regional heterogeneity appear more practical in recognizing the strengths and weaknesses of local areas and in identifying appropriate policies for an effective utilization of territorial potential.

The mixed-method analysis also demonstrated that different assets drive performance in different sectors, through different mechanisms. More specifically, the quantitative analysis demonstrated that specific resources are needed to boost performance in each industry, providing empirical support to Hypothesis 3 (*H3: All else being equal, there is a significant difference in the way territorial capital affects productivity performance in firms operating within specific industries*). For example, transport infrastructure, regional creativity, and social and financial capital have a positive influence upon firms operating in the manufacturing sector, while

accommodation and food services benefit from the presence of cognitive, artistic and natural capital.

The insight provided by the qualitative procedure added further information, showing how the presence of high quality territorial resources, both tangible and intangible, affect firms with different intensity and through different mechanisms, depending on sector. Whilst the analysis confirms that certain resources are important drivers of performance in particular sectors, it also shows that the existence of high quality resources *per se* may also bring indirect benefits to other sectors. For example, the endowment of artistic and natural capital may have a direct impact on A&F firms by attracting tourists and other customers; however, the presence of monuments and museums can also indirectly influence firms in the ICT and Man. sectors by stimulating the generation of new ideas or acting as marketing tool. Furthermore, the biodiversity of the natural environment, the presence of sea, mountains and good weather may also have an indirect effect on improving the quality of life of entrepreneurs and employees and in some cases, attracting valuable human resources from other regions. Results at sector level may have important policy implications because they may be useful in suggesting different strategies for policy interventions at the regional level to boost performance in target industries.

7.3 Contribution to theory and to empirical knowledge

This is, as far as I am aware, the first study that empirically investigates the impact of territorial capital (conceptualized as the co-existence of local resources) upon firms' performance. The theoretical contribution of this research can be framed within three main areas. Firstly, the quantitative analysis contributes to the *new growth theory* as it explains long run productivity in terms of endogenous mechanisms which vary from one place to another.

Whilst previous researchers focused on a single territorial asset, such as human and institutional capital, among others (Backman, 2014; Lasagni *et al.*, 2015), this research argues that to explain the relations between firms and territories fully, each resource should be analyzed in relation to the presence of other territorial components. The study considered nine different components of territorial capital and

demonstrated that a set of both tangible and intangible endogenous local resources contribute to the productivity of Italian firms, to varying extents across geographical areas and economic sectors.

More specifically, this analysis found that creativity, measured as the ability to invent new products and processes, artistic events and the creation of new firms, together with the presence of transport infrastructure and the availability of financial resources have a positive impact upon firms' productivity. Other intangible territorial assets such as social and cognitive capital are also able to affect productivity, although with different effects depending on the area and the industrial sector. For example, creativity, social and cognitive capital have a larger impact in the South-Centre regions, compared to the North.

Tangible territorial assets also have heterogeneous effects. At the aggregate level, the presence of an artistic heritage and natural protected sites do not positively affect productivity. However, when allowing coefficient estimates to vary across the North and the rest of the country and across industrial sectors, results show a different outcome. For example, the South and Central regions benefit from the endowment of natural capital, contrary to the North.

Hence, overall, this analysis contributes to new growth theory by providing evidence that firm productivity benefits from the balanced presence of tangible and intangible elements that characterize the region where the firm operates, to differing extents across geographical areas and economic sectors. This is important to develop new frontiers of research aimed at explaining long run productivity with endogenous factors and mechanisms rooted in the mix of inputs endowed within different territories.

Secondly, this research contributes to empirical knowledge of *endogenous development* theory as it supports the idea that the factor of competitiveness can be found within territories; in particular it demonstrated that the presence of territorial capital may increase firms' efficiency and productivity and generate competitive advantages related with location. This approach expands on previous work on *local productive systems, industrial districts, milieu* and *space spillovers*, which have been studied within the field of economic geography and development as in this analysis, the *territory* is not only the geographical area where firms interact among each other.

This study identified a different type of spillovers, named *territorial spillovers*; these do not flow from one firm to another or from one region to another, but come from the local context, with its specific resource endowment, to firms, influencing their performance.

Additionally, results from interviews showed that the valorisation of territorial capital has a potential to generate non-economic values, such as environmental sustainability, cultural heritage maintenance, and local pride. For example, A&F firms which select suppliers at local level by exploiting the strength of relational capital are able not only to control the quality of their products, but also to reduce environmental pollution. Other companies which, for example, take advantage of the existing ancient traditions to attract clients, favour the maintenance of cultural heritage which, according to Throsby (1999), is crucial to long term sustainability, due to the provision of a sense of identity. Entrepreneurs are also proud to contribute their activity to the development of the area and this is one of the reasons they will not move their firms towards more favourable locations. Yet, despite the fact that a great deal of theoretical speculation has been made concerning endogenous development, very little empirical investigation has evidenced its potential to produce non-economic benefits. Hence, overall, these results have provided empirical evidence supportive of the theoretical approach of the OECD (2011) and Camagni (2008), who stress the importance of territorial assets in local endogenous development of cities and regions.

Finally, this study contributes to empirical knowledge related to *Resource Based Theory* as it explains how the co-existence of territorial resources, as it happens in the case of firms' internal resources, may become source of competitive advantage. The power of the theory of territorial capital lies in the idea that performance is not only influenced by the existence of individual resources, but also by the mix of all valuable tangible and intangible resources available in each place which is unique, rare and not easily found elsewhere, formalizing the intuition already advanced by scholars such as Porter (1990), Dicken and Malmberg (2001) and Kitson *et al.* (2004).

Although in recent years an array of scholars has emphasized the supremacy of intangible factors, from this study there is no clear evidence that intangible resources are more important than tangible ones, as both methods show that firms benefit from a balanced presence of both tangible and intangible territorial elements. Thus, building

on the idea of Fahy (2002), it could be useful to reclassify resources in terms of *inherited basic resources*, such as cultural, natural and artistic heritage (those provided by 'God' or ancestors) and *created advanced resources* or 'capabilities' which are produced by long-term investment.

As explained in 2.6, the valorisation of territorial capital is defined as the process through which local actors, including firms, exercise their power and capabilities to accumulate and/or enhance and/or mobilize local resources; hence, to build and release local potential fully, the degree of territorial capacity lies in the endowment of intangible resources. Therefore, although both tangible and intangible resources are important to firms' performance, immaterial forms of territorial capital are essential to produce advanced resources, maximizing the benefit of inherited resources, overcoming territorial weaknesses and triggering the process of endogenous development.

In this regard, the qualitative procedure showed that the province of Palermo has been blessed with a rich endowment of 'inherited resources'; in contrast, more 'advanced resources' such as creative, relational capital, entrepreneurial culture and the capability to build and maintain efficient infrastructure strongly support firm performance in the province of Milan. Long-term investments in building advanced resources such as entrepreneurial culture, creativity, bridging social capital, institutions and efficient transport infrastructure are needed to realize the untapped potential of the province of Palermo and its rich endowment of inherited resources fully. This also confirms the importance of strengthening *localised capabilities* linked to regional infrastructures, institutional endowments, and the knowledge and skills available in the region as they are developed over a long period of time, interconnected to each other and difficult to imitate (Maskell and Malmberg, 1999b).

7.4 Contribution to methodology, limitations and suggestions for most effective methodological approaches

Another contribution of this work is provided through the use of the mixed-method analysis. Whilst previous studies on territorial capital use either quantitative or qualitative techniques, here information obtained through the econometric analysis

was used as the basis for a more in-depth qualitative investigation of the relationship between firms and territorial capital in a small number of selected cases. The nested mixed-method model combined the advantages of both methods, allowing the understanding of the topic from different perspectives and levels, enriching the point of view of the research and increasing its accuracy and validity of results (Creswell, 2003).

From one side, it was possible to investigate the impact of territorial capital at national level, using a large sample of firms observed during a long period of time, correlating independent and dependent variables to determine causal relations. Whilst most quantitative studies simply use dummy variables as proxies of geographical location (Hoogstra and Van Dijk, 2004), this research explained geographical differences among territories, quantifying the endowment of regional resources. This clearly demonstrated the importance that territorial capital plays upon performance of firms in Italy.

However, unpacking and measuring different components of territorial capital is undoubtedly not an easy task. It is hard to find good and universally recognized proxies and the provision of secondary data at sub-national level is often insufficient. Furthermore, it is extremely difficult to describe the complexity of local contexts precisely as they are unique and dynamic; each set of local resources might have different characteristics and impacts in each place, making generalizations of the results difficult.

Enriching the quantitative analysis with a qualitative investigation enabled considering further aspects which were not quantified or even recognized *a priori*, giving an insight into “*what real life is like*”, revealing rich and holistic information about complexity (Miles *et al.* 2013: 11). Therefore, it was possible to gain additional knowledge by studying the different nature and operation of territorial capital within specific local areas, through the comparison of two provinces in the North and South of Italy.

Triangulation provided many benefits such as increasing the level of confidence in the results, revealing unique findings and providing a better understanding of the problem (Thurmond, 2001). However, although a nested mixed-method approach has many strengths, in some cases it can be problematic to interpret the final results when

there are discrepancies between methods that may increase the level of confusion (Creswell, 2003). In this analysis, the limit of the adopted approach is given by the different unit of analysis which does not allow direct comparisons of results. While the quantitative analysis is conducted considering 20 regions (NUTS2) operating in 12 sectors, the qualitative analysis refers to firms located in 2 provinces (NUTS3) and operating in 3 sectors. Thus, the mixed-method approach only enables expanding the econometric results at geographical and sector level, with the additional insight provided by owners/managers in the two provinces. Additionally, it is important to highlight that while the quantitative analysis focuses on the impact of territorial capital in terms of firms' productivity, the qualitative analysis emphasizes firms' performance in terms of turnover growth and competitiveness, in a broader general sense.

This limitation could be potentially addressed by developing a more effective methodology able to understand precisely what set of resources is the most valuable in each sector and in specific local areas, using both quantitative and qualitative enquires. This could be achieved, for example, by providing *ad hoc* questionnaires to a sizeable sample of firms operating in a specific sector and geographical area; this would allow generalization of results within a case study, gaining a higher level of multidimensionality of territorial capital, compared to the use of secondary data sources. In so doing it is also important to consider that 'territory', intended as a container and producer of territorial capital, can assume different scales and be identified as cities, regions, nations or other units of economic functional areas. In particular, from a firm's view perspective different elements of territorial capital might be differently relevant depending on the spatial scale. For instance, as it emerged from interviews, labour markets often operate across different spatial levels (e.g. highly skilled labour markets frequently operate at regional, national and international scales; markets for lower skills are normally more local). Other elements such as culture can also operate across different scale (e.g. 'the Italian culture' vs specific cultural traits existing at the very local level). How these different territorial levels come together to affect firm performance is likely to be varied and complex and it is an important aspect to be considered further in future research designs.

7.5 Contribution to practice

In Europe, there is a strong belief that territories are important for competitiveness and that regional development should derive from, or at least be connected to an effective valorisation of existing economic, social, cultural and environmental conditions (European Union, 2011). In Italy specifically, due to the high endowment of unique territorial assets (i.e. the highest number of UNESCO sites or ancient manufacturing tradition), a range of scholars strongly argue in favour of the idea that economic development should draw upon the valorisation of these assets, and that firms can find their competitive advantage within their own territories (Garofoli, 2002; Dematteis and Governa, 2005; Societa dei Territorialisti, 2014⁶⁵).

The recognition and identification of territorial capital could help firms and other key actors gain a more systematized knowledge of local contexts, their characteristics, strengths, weaknesses, opportunities, and threats (SWOT). This could also support policy makers to understand the specificities of each territory and identify appropriate policies to promote particular sectors within provinces/regions, as well as reduce territorial disparities and obstacles to development. For instance, the analysis showed that Italian regions that want to promote the tourist sectors should particularly maintain and valorise their artistic and natural resources. However, the insight provided by interviews highlighted that in Sicily, the lack of bridging social capital, the weak entrepreneurial culture, the inadequate infrastructure endowment as well as the incapacity of local institutions to valorise the rich artistic and cultural heritage do not adequately tap the local potential in this sector. Hence, to take the most from the rich endowment of inherited resources, policy makers should be able to identify and contrast regional weaknesses, through long-term investment in advanced resources.

More specifically, Vázquez-Barquero (2003) argues that the productive use of local potential is expedited when institutions and regulatory mechanisms function efficiently; effective institutions are key because they can directly control the process of the valorisation of institutional capital and consequently, influence and shape infrastructural, productive, human, social and cultural capital, among others (i.e. through the public education system).

⁶⁵ www.societadeiterritorialisti.it Accessed on April 2nd, 2014; h:4.00 pm

With respect to firms, the detection of territorial capital can be particularly useful to spot possible advantages and disadvantages related to different firm location choices. For instance, firms working in the ICT and manufacturing sector in Milan can enjoy different benefits provided by the existence of a stimulating environment which, unfortunately, is not always found in the province of Palermo. Therefore, 'smart policies' in Sicily should be oriented to removing obstacles to innovation favouring creativity through the organization of events, promoting occasions of networking and inter-exchange among firms, and favouring cultural change through investment in education.

Hence, with reference to the well-known political debate between 'place based approach' versus 'people/firms based approach' (Barca *et al.*, 2012), this analysis strongly argues that effective policies should aim at targeting specific sectors within specific places. While policy recommendations could be developed by performing a more systematic analysis at local level, this study has highlighted an important aspect: long-term investments aimed at developing advanced resources in each local area should be pursued to release the territorial potential fully and trigger the process of local endogenous development. This is also in line with the idea stressed by Fratesi and Perucca (2014, 2016) who highlight the importance of local policies in incrementing territorial capital of deprived areas, in a long term perspective.

7.6 Conclusion and suggestions for future research

To conclude, it is possible to affirm that regional specificities and territorial uniqueness may play an important role in promoting firms' success. While firms' internal factors and macroeconomic conditions are still essential in driving firm performance, *endogenous* factors are also important and prosperity is ever more dependent on how well each local area can achieve its potential (OECD, 2001). In particular territories, their tangible and intangible resources influence the way in which firms work, contributing to their productivity and becoming a source of economic advantage and/or disadvantage. The extent of this impact varies across geographical areas and sectors.

The concept of territorial capital is particularly important for two main purposes. Firstly, by investigating each of its dimensions individually, it is possible to identify the

strengths and weaknesses of each local context, understanding how firms could potentially benefit from these assets in different sectors. Secondly, by looking at the combination of assets existing in different places, it is possible to understand consequences for firms' location choice, the causes of persistent regional disparity as well as identifying areas for improvement and potential sources of development.

Future research should be addressed in studies, both quantitative and qualitative, of what forces mainly drive the process of accumulation of territorial resources, as well as their interconnections and cause and effect relations. For example, at the meso level, it would be interesting to analyze how increments of an existing stock of resources are driven by increments in other stocks also determining the 'recommendable' endowment of territorial capital to push specific industries within specific places. However, this is a challenging task, above all from a quantitative prospective, as long time series data would need to be available at the local level.

Future research should also focus on the interaction between firms' inputs and regional assets to assess the presence of complementarities. This could answer the question of whether firms' internal choices, in terms of skills and management practices, can promote the firms' ability to take advantage of regional resources, i.e. whether the concept of absorptive capacity, which is usually analyzed in the context of technological innovations, is also valid for the exploitation of a different mix of regional resources.

Another way to build on this research would be to consider the rivalry categorization used by Camagni (2008) that classifies territorial resources according to their private/public ownership. In this way, it could be possible to understand the importance played by ownership and public/private management in the valorisation of different forms of capital. It could also be useful to extend the quantitative analysis to include more countries and territorial indicators, and provide a higher level of disaggregation within macro sectors.

References

- Acemoglu, D., and Robinson, J. (2008). 'The role of institutions in growth and development'. *World Bank, Washington DC*.
- Akerberg, D., Benkard, C. L., Berry, S., and Pakes, A. (2007). 'Econometric Tools for Analyzing Market Outcomes', Ch. 63 in *Handbook of Econometrics*, Volume 6A, James Heckman and Edward Leamer.
- Affuso, A., and Camagni, R. (2010). 'Territorial capital and province performance in the Latin Arch: an econometric approach' available at <http://www.grupposervizioambiente.it/aisre/pendrive2010/pendrive/paper/affuso1.pdf>
- Aiello, F., Pupo, V., and Ricotta, F. (2014). 'Explaining total factor productivity at firm level in Italy: Does location matter?' *Spatial Economic Analysis*, 9(1), 51-70.
- Aiello, F., Pupo, V., and Ricotta, F. (2015). 'Firm Heterogeneity in TFP, sectoral innovation and location. Evidence from Italy'. *International Review of Applied Economics*, 29(5), 579-607.
- Ajitabh, A., and Momaya, K. S. (2004). 'Competitiveness of firms: Review of theory, frameworks and models'. *Singapore Management Review*, 26(1), 45-61.
- Alesina, A., and Giuliano, P. (2015). 'Culture and institutions'. *Journal of Economic Literature*, 53(4), 898-944.
- Amin, A., and Thrift, N. (1995). 'Globalisation, institutional thickness and the local economy'. *Managing cities: The new urban context*, 12, 91-108.
- Ascani, A., Crescenzi, R., and Iammarino, S. (2012). 'Regional Economic Development: A Review', *WP1/03 Search Working Paper*
- Ascari, G., & Di Cosmo, V. (2005). 'Determinants of total factor productivity in the Italian regions'. *Scienze Regionali*.
- Audretsch, D., and Keilbach, M. (2004). 'Entrepreneurship capital and economic performance'. *Regional Studies*, 38(8), 949-959.
- Backman, M. (2014). 'Human capital in firms and regions: Impact on firm productivity'. *Papers in Regional Science*, 93(3), 557-575.
- Barca, F., McCann, P., and Rodríguez-Pose, A. (2012). 'The case for regional development intervention: Place-based versus place-neutral approaches'. *Journal of Regional Science*, 52(1), 134-152.
- Barney, J. (1991). 'Firm resources and sustained competitive advantage'. *Journal of Management*, 17(1), 99-120.

Barringer, B. R., Jones, F. F., and Neubaum, D. O. (2005). 'A quantitative content analysis of the characteristics of rapid-growth firms and their founders'. *Journal of Business Venturing*, 20(5), 663-687.

Barzotto, M., Corò, G., & Volpe, M. (2016). 'Territorial capital as a company intangible: Exploratory evidence from ten Italian multinational corporations'. *Journal of Intellectual Capital*, 17(1), 148-167.

Batabyal, A. A., and Nijkamp, P. (2010). 'Richard Florida's creative capital in a trading regional economy: A theoretical investigation'. *The Annals of Regional Science*, 44(2), 241-250.

Becattini, G. (1990). 'The Marshallian districts as a socio-economic notion' in *Industrial Districts and Inter-firms cooperation in Italy*, *International Institute of Labour Studies*

Belderbos, R., Carree, M., and Lokshin, B. (2004). 'Cooperative R&D and firm performance'. *Research policy*, 33(10), 1477-1492.

BES (2014) 'Il benessere equo e sostenibile in Italia', *Istituto nazionale di statistica*

BES (2015) 'Il benessere equo e sostenibile in Italia', *Istituto nazionale di statistica*

Beugelsdijk, S. (2007). 'Entrepreneurial culture, regional innovativeness and economic growth'. *Journal of Evolutionary Economics*, 17(2), 187-210.

Birch, D. G. (1979). 'The job generation process'. *MIT Program on Neighborhood and Regional Change*

Black, S. E., and Lynch L.M (1996). 'Human-capital investments and productivity', *The American Economic Review* 86.2 263-267.

Bloom, N., and Van Reenen, J. (2006). 'Measuring and explaining management practices across firms and countries' (No. w12216). *National Bureau of Economic Research*.

Bontempi, M. E., and Mairesse, J. (2008). 'Intangible capital and productivity: an exploration on a panel of Italian manufacturing firms' (No. w14108). *National Bureau of Economic Research*.

Brasili, C., Saguatti, A., Benni, F., Marchese, A., and Gandolfo, D. (2012). 'The impact of the economic crisis on the territorial capital of Italian regions'. *ERSA Conference Papers*, (ersa12p644)

Braun, V., and Clarke, V. (2006). 'Using thematic analysis in psychology'. *Qualitative Research in Psychology*, 3(2), 77-101.

Bronzini, R., and Piselli, P. (2009). 'Determinants of long-run regional productivity with geographical spillovers: the role of R&D, human capital and public infrastructure'. *Regional Science and Urban Economics*, 39(2), 187-199.

Camagni, R. (2008). 'Regional competitiveness: Towards a concept of territorial capital'. *Modelling regional scenarios for the enlarged Europe* (pp. 33-47) Springer.

Camagni, R. (2009). 'Per un concetto di capitale territoriale'. *Borri, D., Ferlaino, F.(a Cura Di), Crescita e Sviluppo Regionale: Strumenti, Sistemi, Azioni, Franco Angeli*, , 66-90.

Camagni, R., and Capello, R. (2009). 'Territorial capital and regional competitiveness: Theory and evidence', *Studies in regional science*, Vol 39(1), 19-39.

Camagni, R., and Capello, R. (2013). 'Regional competitiveness and territorial capital: A conceptual approach and empirical evidence from the European Union'. *Regional Studies*, 47(9), 1383-1402.

Camagni, R., Caragliu, A., and Perucca, G. (Draft Version, 2011). 'Territorial capital, relational and human capital'. *Il Capitale Territoriale: Scenari Quali-Quantitativi Di Superamento Della Crisi Economica e Finanziaria Per Le Province Italiane, PRIN*

Capello, R. (2009). 'Spatial spillovers and regional growth: A cognitive approach'. *European Planning Studies*, 17(5), 639-658.

Capello, R. (2011). 'Location, regional growth and local development theories'. *Aestimum*, 1-25.

Capello, R., Caragliu, A., and Nijkamp, P. (2009). 'Territorial Capital and Regional Growth: Increasing Returns in Cognitive Knowledge use'. *Tinbergen Institute Discussion Paper, No. 09-059/3*

Cellini, R., and Soci, A. (2002). 'Pop competitiveness'. *Banca Nazionale del Lavoro Quarterly Review*, 55(220), 71.

Cingano, F., and Schivardi, F. (2004). 'Identifying the sources of local productivity growth'. *Journal of the European Economic Association*, 2(4), 720-744.

Cochrane, P. (2006). 'Exploring cultural capital and its importance in sustainable development'. *Ecological Economics*, 57(2), 318-330.

Coelli, T. J., Rao, D. S. P., O'Donnell, C. J., and Battese, G. E. (2005). 'An introduction to efficiency and productivity analysis'. *Springer Science & Business Media*.

Confesercenti (2010), 'Rapporto SOS Impresa, le mani della criminalità sulle imprese', XII edizione, Roma

Confidustria (2005) 'Per un progetto paese sul territorio 2005', available at <http://www.federturismo.it/>) accessed on January, 15th 2017; h: 4.24 pm

Cooke, P., Clifton, N., and Oleaga, M. (2005). 'Social capital, firm embeddedness and regional development'. *Regional Studies*, 39(8), 1065-1077.

- Corbetta, P. (1999). 'Metodologia e tecniche della ricerca sociale'. *Il mulino*
- Corrado, C. A., Haskel, J., and Jona Lasinio, C. (2014). 'Knowledge spillovers, ICT and productivity growth'. *IZA Discussion Papers, No. 8274*
- Crass, D., and Peters, B. (2014). 'Intangible assets and firm-level productivity'. *ZEW-Centre for European Economic Research Discussion Paper, (14-120)*
- Crescenzi, R., and Rodríguez-Pose, A. (2011). 'Reconciling top-down and bottom-up development policies'. *Environment and Planning A, 43(4)*, 773-780.
- Crescenzi, R., Gagliardi, L., and Percoco, M. (2013). 'Social capital and the innovative performance of Italian provinces'. *Environment and Planning A, 45(4)*, 908-929.
- Creswell, J. W. (2003). '*Research design: Qualitative, quantitative, and mixed methods approach*', Sage publications.
- Creswell, J. W., and Clark, V. L. P. (2007). 'Designing and conducting mixed methods research'. *Liechtenstein Bibliothek*
- Dean, A., and Kretschmer, M. (2007). 'Can ideas be capital? factors of production in the postindustrial economy: A review and critique'. *Academy of Management Review, 32(2)*, 573-594.
- Dechezleprêtre, A., and Sato, M. (2014). 'The impacts of environmental regulations on competitiveness'. Policy Brief, Grantham Research Institute on Climate Change and the Environment, LSE.
- Del Monte, A., & Papagni, E. (2001). 'Public expenditure, corruption, and economic growth: the case of Italy'. *European journal of political economy, 17(1)*, 1-16.
- Dematteis, G. Governa F.(2005), 'Il territorio nello sviluppo locale. Il contributo del modello SLoT'. Dematteis G., Governa F.(a cura di), *Territorialità, sviluppo locale, sostenibilità: il modello SLoT, FrancoAngeli*, Milano, 15-38.
- Detotto, C., Pulina, M., and Brida, J. G. (2014). 'Assessing the productivity of the Italian hospitality sector: a post-WDEA pooled-truncated and spatial analysis'. *Journal of Productivity Analysis, 42(2)*, 103-121.
- Dicken, P., and Malmberg, A. (2001). 'Firms in territories: A relational perspective'. *Economic Geography, 77(4)*, 345-363.
- Dierickx, I., and Cool, K. (1987). 'Asset stock accumulation and sustainability of competitive advantage'. *Management Science, 35(12)*, 1504-1511.
- Dobbs, M., and Hamilton, R. (2007). 'Small business growth: Recent evidence and new directions'. *International Journal of Entrepreneurial Behaviour & Research, 13(5)*, 296-322.

Duffy, J., and Papageorgiou, C. (2000). 'A cross-country empirical investigation of the aggregate production function specification'. *Journal of Economic Growth*, 5(1), 87-120.

Eberhardt, M., and Helmers, C. (2010). 'Untested assumptions and data slicing: A critical review of firm-level production function estimators' *Department of Economics, University of Oxford*.

Edmiston, K. D. (2007). 'The role of small and large businesses in economic development', *Federal Reserve Bank of Kansas City*

European Central Bank (ECB) (2014). *Micro-based evidence of EU competitiveness - the compnet database*

European Union (2011 update). 'The territorial state and perspectives of the European Union'. *Background document for the Territorial Agenda of the European Union 2020*

Evans, M., and Syrett, S. (2007). 'Generating social capital? the social economy and local economic development'. *European Urban and Regional Studies*, 14(1), 55-74.

Fagerberg, J., and Srholec, M. (2008). 'National innovation systems, capabilities and economic development'. *Research Policy*, 37(9), 1417-1435.

Fahy, J. (2002). 'A resource-based analysis of sustainable competitive advantage in a global environment'. *International Business Review*, 11(1), 57-77.

Fazio, G., and Piacentino, D. (2010). 'A spatial multilevel analysis of Italian SMEs' productivity'. *Spatial Economic Analysis*, 5(3), 299-316.

Fereday, J., and Muir-Cochrane, E. (2006). 'Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development'. *International Journal of Qualitative Methods*, 5(1), 80-92.

Field, A. (2009). 'Discovering statistics using SPSS'. *Sage publications*.

Fischer, M. M., and Nijkamp, P. (2009). 'Entrepreneurship and Regional Development', *Edward Elgar Publishing Limited*

Florida, R. (2002). 'The rise of the creative class, and how it is transforming work, leisure, community and everyday life', *Basic Books*, New York, 2002, 404

Force, C. T. (2014). *Micro-Based Evidence of EU Competitiveness: The CompNet Database*,

Foss, N. J. (1996). Higher-order industrial capabilities and competitive advantage. *Journal of Industry Studies*, 3(1), 1-20.

Frances, J. (2004). 'Institutions, firms and economic growth'. Nz Treasury Working Paper 04/19

Fratesi, U., and Perucca, G. (2014). 'Territorial capital and the effectiveness of cohesion policies': An assessment for CEE regions' *Investigaciones Regionales*, 29 (2014) - Pages 165 to 191

Fratesi, U., and Perucca, G. (2016). 'Territorial capital and EU Cohesion Policy'. *EU Cohesion Policy: Reassessing performance and direction*.

Fukuyama, F. (1995). 'Trust: The social virtues and the creation of prosperity' (No. D10 301 c. 1/c. 2). *New York: Free press*.

Galbreath, J. (2005). Which resources matter the most to firm success? an exploratory study of resource-based theory. *Technovation*, 25(9), 979-987.

Garofoli, G. (2002). 'Local development in Europe theoretical models and international comparisons'. *European Urban and Regional Studies*, 9(3), 225-239.

Gertler, M. S. (2003). 'Tacit knowledge and the economic geography of context, or the undefinable tacitness of being (there)'. *Journal of Economic Geography*, 3(1), 75-99.

Greene, J. C., Caracelli, V. J., and Graham, W. F. (1989). 'Toward a conceptual framework for mixed-method evaluation designs'. *Educational evaluation and policy analysis*, 11(3), 255-274.

Greenstone, M., List, J. A., and Syverson, C. (2012). 'The effects of environmental regulation on the competitiveness of US manufacturing' (No. w18392). *National Bureau of Economic Research*.

Griliches, Z. (1998). 'R&D and productivity'. *National Bureau of Economic Research Books*.

Griliches, Z., and Mairesse, J. (1995). 'Production functions: the search for identification' (No. w5067). *National Bureau of Economic Research*.

Grimes, S. (2003). 'The digital economy challenge facing peripheral rural areas'. *Progress in Human Geography*, 27(2), 174-193.

Guba, E. G., and Lincoln, Y. S. (2005). 'Paradigmatic controversies, contradictions, and emerging confluences'. London: *Sage Publications*.

Guiso, L., Sapienza, P., and Zingales, L. (2006). 'Does culture affect economic outcomes?' *The Journal of Economic Perspectives*, 20(2), 23-48.

Guiso, L., Sapienza, P., and Zingales, L. (2009). 'Does local financial development matter?' *In The Banks and the Italian Economy (pp. 31-66)*. *Physica-Verlag HD*.

Guiso, L., Sapienza, P., and Zingales, L. (2010). 'Civic Capital as the Missing Link', *EUI Working Papers, ECO 2010/08 Department of Economics*

Gujarati, D. N., and Porter, D. C. (1999). 'Essentials of econometrics'. *McGraw Hill*

Halfpenny, P. (2001). 'Positivism in the twentieth century'. In G. Ritzer & B. Smart (Eds.), *Handbook of social theory* (pp. 371-385), London, Sage.

Hall, B. H., and Mairesse, J. (1995). 'Exploring the relationship between R&D and productivity in French manufacturing firms'. *Journal of econometrics*, 65(1), 263-293.

Hall, R. (1992). 'The strategic analysis of intangible resources'. *Strategic Management Journal*, 13(2), 135-144.

Hall, R. (1993). 'A framework linking intangible resources and capabilities to sustainable competitive advantage'. *Strategic Management Journal*, 14(8), 607-618.

Haltiwanger, J. (2011). 'Firm dynamics and productivity growth'. *European Investment Bank Papers*, 16(1), 116-136.

Harris, R., and Moffat, J. (2011). 'Plant-level determinants of total factor productivity in Great Britain, 1997-2006', available at <http://www.spataleconomics.ac.uk/textonly/SERC/publications/download/sercdp0064.pdf>

Henrekson, M., and Johansson, D. (2010). 'Gazelles as job creators: A survey and interpretation of the evidence'. *Small Business Economics*, 35(2), 227-244.

Hoogstra, G. J., and van Dijk, J. (2004). 'Explaining firm employment growth: Does location matter?' *Small Business Economics*, 22(3-4), 179-192.

Hudson, R. (1999). 'The learning economy, the learning firm and the learning Region' A sympathetic critique of the limits to learning. *European Urban and Regional Studies*, 6(1), 59-72.

Isaksen, A. (2001). 'Building regional innovation systems: Is endogenous industrial development possible in the global economy?' *Canadian Journal of Regional Science*, 24(1), 101-120.

Isaksson, A. (2007). 'Determinants of total factor productivity: A literature review'. *Research and Statistics Branch, UNIDO*

Jabareen, Y. (2008). 'A new conceptual framework for sustainable development'. *Environment, Development and Sustainability*, 10(2), 179-192.

Johnson, R. B., and Onwuegbuzie, A. J. (2004). 'Mixed methods research: A research paradigm whose time has come'. *Educational researcher*, 33(7), 14-26.

Johnson, R. B., Onwuegbuzie, A. J., and Turner, L. A. (2007). 'Toward a definition of mixed methods research'. *Journal of mixed methods research*, 1(2), 112-133.

Jóna, G. (2015). 'Determinants of Hungarian sub-regions' territorial capital'. *European Spatial Research and Policy*, 22(1), 101-119.

Jovanovic, B., and Nyarko, Y. (1994). 'Learning By Doing and the Choice of Technology' (No. w4739). *National Bureau of Economic Research*.

Kaldor, N. (1961). 'Capital accumulation and economic growth'. *Macmillan*.

Keeley, B. (2007). 'Human capital, how what you know shapes your life'. *OECD*.

Kitson, M., Martin, R., and Tyler, P. (2004). 'Regional competitiveness: An elusive yet key concept?' *Regional Studies*, 38(9), 991-999.

Landmann, O. (2004). 'Employment, productivity and output growth'. *Employment Strategy Papers*, 17, 1-61.

Lasagni, A., Nifo, A., and Vecchione, G. (2015). 'Firm productivity and institutional quality: Evidence from Italian industry'. *Journal of Regional Science*, 55(5), 774-800.

Lee, S. M., and Peterson, S. J. (2001). 'Culture, entrepreneurial orientation, and global competitiveness'. *Journal of world business*, 35(4), 401-416.

Leonardi, R. (1995). 'Regional development in Italy: Social capital and the mezzogiorno'. *Oxford Review of Economic Policy*, 11(2), 165-179.

Leung, D., Meh, C., and Terajima, Y. (2008). 'Firm size and productivity' (No. 2008, 45). Bank of Canada Working Paper.

Levinsohn, J., and Petrin, A. (2003). 'Estimating production functions using inputs to control for unobservables'. *The Review of Economic Studies*, 70(2), 317-341.

Lo Cascio, I., Mazzola, F., Di Giacomo, G., and Epifanio, R. (2013). 'Territorial capital and the economic crisis: The role of spatial effects' *ERSA Conference Papers*, (ersa13p1333)

Maggino, F. (2009). 'The state of the art in indicators construction in the perspective of a comprehensive approach in measuring well-being of societies'. *Università degli Studi di Firenze*.

Magnaghi, A. (2000). 'Il progetto locale', *Bollati Boringhieri, Torino*

Mairesse, J., and Jaumandreu, J. (2005). 'Panel-data estimates of the production function and the revenue function: What difference does it make?'. *The Scandinavian Journal of Economics*, 107(4), 651-672. .

Malecki, E. J. (2012). 'Regional social capital: Why it matters'. *Regional Studies*, 46(8), 1023-1039.

Marrocu, E., Paci, R., and Pala, R. (2000). 'Estimation of total factor productivity for regions and sectors in Italy. A panel cointegration approach'. (December 2000). University of Cagliari, Italy Contributi Di Ricerca CRENoS 00/16,

Marrocu, E., Paci, R., and Pontis, M. (2012). 'Intangible capital and firms' productivity'. *Industrial and Corporate Change*, 21(2), 377-402.

Martinelli, F. (1998). 'The governance of post-war development and policy in Southern Italy: notes for a critical reappraisal'. In *Second European Urban and Regional Studies Conference, Durham, September*.

Maskell, P., and Malmberg, A. (1999a). 'Localised learning and industrial competitiveness'. *Cambridge Journal of Economics*, 23(2), 167-185.

Maskell, P., and Malmberg, A. (1999b). 'The competitiveness of firms and regions 'Ubiquitification' and the importance of localized learning'. *European Urban and Regional Studies*, 6(1), 9-25.

Mason, G., O'Leary, B., and Vecchi, M. (2012). 'Certified and uncertified skills and productivity growth performance: Cross-country evidence at industry level'. *Labour Economics*, 19(3), 351-360.

Miles, M. B., Huberman, A. M., and Saldana, J. (2013). 'Qualitative data analysis: A methods sourcebook'. *SAGE Publications, Incorporated*.

Mitusch, K., and Schimke, A. (2011). 'Gazelles-high-growth companies'. *Final Report. Task, 4*

Moretti, L. (2014). 'Local financial development, socio-institutional environment, and firm productivity: Evidence from Italy'. *European Journal of Political Economy*, 35, 38-51.

Moulaert, F., and Sekia, F. (2003). 'Territorial innovation models: A critical survey'. *Regional Studies*, 37(3), 289-302.

Moulton, B. R. (1990). 'An illustration of a pitfall in estimating the effects of aggregate variables on micro units'. *The Review of Economics and Statistics*, 334-338.

Nerozzi S., Pipitone V., Ricchiuti G. (2014) 'Social Capital and Firm's Productivity in Italy: a Multilevel Approach'; Working Paper N. 28/2014

North, D. C. (1990). 'Institutions, institutional change and economic performance'. Cambridge university press.

O'Mahony, M., and Vecchi, M. (2009). 'R&D, knowledge spillovers and company productivity performance'. *Research Policy*, 38(1), 35-44.

OECD (2001). 'Territorial outlook', *OECD Publications Service*.

OECD. (2008). 'Handbook on constructing composite indicators: methodology and user guide'. Joint Research Center, *OECD publishing*

Olley, G. S., and Pakes, A. (1996). 'The dynamics of productivity in the telecommunications equipment industry', *Econometrica*, 64 (6), 1263-1297.

O'Mahony, M., & Vecchi, M. (2009). 'R&D, knowledge spillovers and company productivity performance'. *Research Policy*, 38(1), 35-44.

O'Mahony, M., and Vecchi, M. (2005). 'Quantifying the impact of ICT capital on output growth: a heterogeneous dynamic panel approach'. *Economica*, 72(288), 615-633.

Oxford (2015) 'Resources' Oxford Living Dictionaries. Available at: <http://www.oxforddictionaries.com/definition/english/resource> (Accessed on April 2015).

Perucca, G. (2013). 'The role of territorial capital in local economic growth: Evidence from Italy'. *European Planning Studies*, (ahead-of-print), 1-26.

Peteraf, M. A. (1993). 'The cornerstones of competitive advantage: A resource-based view'. *Strategic Management Journal*, 14(3), 179-191.

Piergiovanni, R., Carree, M. A., and Santarelli, E. (2012). 'Creative industries, new business formation, and regional economic growth'. *Small Business Economics*, 39(3), 539-560.

Pike, A., Pose, A. R., and Tomaney, J. (2006). 'Local and regional development'. *Routledge*.

Pike, A., Rodríguez-Pose, A., and Tomaney, J. (2007). 'What kind of local and regional development and for whom?' *Regional Studies*, 41(9), 1253-1269.

Porter, M. E. (1985). 'Competitive advantage: Creating and sustaining superior performance', *New York: Free Press*

Porter, M. E. (1990). 'The competitive advantage of nations'. *Harvard business review*, March-April, 68(2), 73-93.

Porter, M. E. (2003). 'The economic performance of regions'. *Regional Studies*, 37(6-7), 545-546.

Portes, A. and Landolt, P. (1996). 'The downside of social capital'. *The American Prospect*, 26, 18-21.

Portes, A. (1998). 'Social capital: Its origins and applications in modern sociology'. *Annual review of sociology*, 24(1), 1-24.

Ray, C. (1998). 'Culture, intellectual property and territorial rural development'. *Sociologia Ruralis*, 38(1), 3-20.

Rodríguez-Pose, A. (2013). 'Do institutions matter for regional development?' *Regional Studies*, 47(7), 1034-1047.

Rodríguez-Pose, A., and Tijmstra, S. (2009). 'On the Emergence and Significance of Local Economic Development Strategies', *CAF working papers*

Rota, F. S. (2010). 'The territorial embedment of global industrial networks. Theoretical insights and evidences from foreign MNCs' affiliates in Turin (Italy)' working paper.

Ryan, A. B. (2006). 'Post-positivist approaches to research. Researching and Writing your Thesis: a guide for postgraduate students', *MACE: Maynooth Adult and Community Education*, 12-26.

Santagata, W. (2002). 'Cultural districts, property rights and sustainable economic growth'. *International Journal of Urban and Regional Research*, 26(1), 9-23.

Saunders, M., Lewis, P., and Thornhill, A. (2007). 'Research methods for business students', *Pearson Education Limited*

Scott, A. J., and Storper, M. (2007). 'Regions, globalization, development'. *Regional Studies*, 41(S1), S191-S205.

Servillo, L., Atkinson, R., and Russo, A. P. (2012). 'Territorial attractiveness in EU urban and spatial policy: A critical review and future research agenda'. *European Urban and Regional Studies*, 19(4), 349-365.

Shah, A. (1992). 'Dynamics of public infrastructure, industrial productivity and profitability'. *The Review of Economics and Statistics*, 28-36.

Shane, S. (1993). 'Cultural influences on national rates of innovation'. *Journal of Business Venturing*, 8(1), 59-73.

Shefer, D., and Frenkel, A. (2005). 'R&D, firm size and innovation: An empirical analysis'. *Technovation*, 25(1), 25-32.

Shucksmith, M. (2000). 'Endogenous development, social capital and social inclusion: Perspectives from LEADER in the UK'. *Sociologia Ruralis*, 40(2), 208-218.

Sianesi, B., and Van Reenen J. (2003): 'The returns to education: Macroeconomics', *Journal of economic surveys* 17.2 157-200.

Smallbone, D., Leig, R., and North, D. (1995). 'The characteristics and strategies of high growth SMEs.' *International Journal of Entrepreneurial Behaviour & Research*, 1(3), 44-62.

Solow, R. M. (1956). 'A contribution to the theory of economic growth'. *The Quarterly Journal of Economics*, 65-94.

Sternberg, R., and Arndt, O. (2001). 'The firm or the region: what determines the innovation behaviour of European firms?' *Economic Geography*, 77(4), 364-382.

Stimson, R. J., Robson, A., and Shyy, T. (2009). 'Measuring regional endogenous growth'. *Handbook of Regional Growth and Development Theories*, 354.

Stimson, R. J., Stough, R., and Nijkamp, P. (2011). 'Endogenous regional development: Perspectives, measurement and empirical investigation'. Edward Elgar Publishing.

Stimson, R., and Stough, R. (2011). 'An exploratory approach to model determinants of endogenous regional growth performance'. *Endogenous Regional Development: Perspectives, Measurement and Empirical Investigation*, 111-142.

Stiroh, K. J. (2001). 'What drives productivity growth?' *Economic Policy Review*, 7(1)

Stöhr, W. B. (1990). 'Global challenge and local response: initiatives for economic regeneration in contemporary Europe (Vol. 2)'. *United Nations University Press*.

Storey, D. J. (1994). 'Understanding the small business sector'. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship

Storper, M. (1995). 'The resurgence of regional economies, ten years later the region as a nexus of untraded interdependencies'. *European urban and regional studies*, 2(3), 191-221.

Storper, M. (1997). 'The regional world: Territorial development in a global economy', *Guilford Press*.

Syrett, S. (1994). 'Local power and economic policy: Local authority economic initiatives in Portugal'. *Regional Studies*, 28(1), 53-67

Syverson, C. (2011). 'What determines productivity?'. *Journal of Economic literature*, 49(2), 326-365.

Tabellini, G. (2010). 'Culture and institutions: Economic development in the regions of Europe'. *Journal of the European Economic Association*, 8(4), 677-716.

Taylor, M., and Plummer, P. (2011). 'Endogenous regional theory: A geographer's perspective and interpretation'. *Endogenous Regional Development: Perspectives, Measurement and Empirical Investigation*, 39-59.

Throsby, D. (1999). 'Cultural capital'. *Journal of Cultural Economics*, 23(1-2), 3-12.

Thurmond, V. A. (2001). 'The point of triangulation'. *Journal of nursing scholarship*, 33(3), 253-258.

Todaro, M. P., and Smith, S. C. (2009). 'Economic development'. *England: Pearson Education Ltd*,

Tödtling, F. (2010). 'Endogenous approaches to local and regional development policy'. *Handbook of Local and Regional Development*, 333-334

Tóth, B. I. (2014). 'Territorial capital: Theory, empirics and critical remarks'. *European Planning Studies*, (ahead-of-print), 1-18.

Vaessen, P. M. M. (1993). 'Small business growth in contrasting environments'. Nijmegen: Department of Economic Geography, Faculty of Administrative Sciences, KU Nijmegen.

Vaessen, P., and Keeble, D. (1995). 'Growth-oriented SMEs in unfavourable regional environments'. *Regional Studies*, 29(6), 489-505.

Van Beveren, I. (2010). 'Total factor productivity estimation: A practical review'. *Journal of Economic Surveys*, 26(1), 98-128.

Van Biesebroeck, J. (2003). 'Revisiting some productivity debates'(No. w10065). *National Bureau of Economic Research*.

Vanclay, F. (2011). 'Endogenous rural development from a sociological perspective'. Endogenous regional development: Perspectives, measurement and empirical investigation () *Edward Elgar Publishing*.

Vázquez-Barquero, A. (2003). 'Endogenous development: Networking, innovation, institutions and cities'. *Routledge*.

Westlund, H., and Bolton, R. (2003). 'Local social capital and entrepreneurship'. *Small Business Economics*, 21(2), 77-113.

Woolcock, M. (2004). 'Why and how planners should take social capital seriously'. *Journal of the American Planning Association*, 70(2), 183-189.

Yasar, M., Raciborski, R., and Poi, B. (2008). 'Production function estimation in stata using the olley and pakes method'. *Stata Journal*, 8(2), 221.

Web links

<http://d-maps.com/>

<http://ec.europa.eu/eurostat>

<http://www.ats.ucla.edu/stat/stata/webbooks/reg/chapter4/statareg4.htm>

<http://www.bancaditalia.it/>

<http://www.chilometrozero.net/>

http://www.esteri.it/mae/en/ministero/servizi/benvenuti_in_italia/conoscere_italia/economia.html

<http://www.euklems.net/>

<http://www.federturismo.it>

<http://www.governo.it/>

<http://www.istat.it/en/>

<http://www.oecd.org/insights/37966934.pdf>

<http://www.oxforddictionaries.com>

<http://www.regione.vda.it/>

<http://www.societadeiterritorialisti.it/>

<http://www.sviluppoeconomico.gov.it/index.php/it/>

<http://www.tagliacarne.it/>

<http://www.unesco.it/cni/index.php/siti-italiani>

<http://www.urp.gov.it/Sezione.jsp?idSezione=783>

Appendix

Appendix A

Table A1: Data at firm level, summary statistics

| Variable | Obs. | Mean | Std. Dev. | Min | Max |
|--------------------|-------------|-------------|----------------------|------------|------------|
| Value Added | 779606.0 | 2045.9 | 4284.1 | 6.6 | 107975.4 |
| Tangible Capital | 789719.0 | 2093.5 | 11648.9 | 0.9 | 2896168.0 |
| Intangible Capital | 681394.0 | 310.7 | 1373.7 | 0.9 | 66279.0 |
| N. of employees | 630471.0 | 44.9 | 79.0 | 2.0 | 1551.0 |

Table A2:

The impact of territorial capital on TFP: sector analysis (robust standard errors clustered at firm level)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---------------|---|--|--|-------------------------|---|---|--|---|--|--|
| | Arts, entertainment and recreation (R) | Accommodation and food service activities (I) | Financial and insurance activities (K) | Manufacturing (C) | Scientific research and other technical activities (M) | Wholesale and retail trade, repair of motor vehicles and motorcycles | Administrative and support service activities (N) | Information and communication (J) | Education (P) & Human health services, residential care and | Transportation and storage (H) & Other services (S) |
| <i>Cre</i> | -0.0962 (0.0982) | -0.00780 (0.0264) | -0.0493 (0.0812) | 0.0886*** (0.00740) | 0.00558 (0.0304) | 0.0459*** (0.0125) | 0.0775* (0.0401) | 0.00544 (0.0281) | 0.0184 (0.0305) | 0.129*** (0.0227) |
| <i>SocCap</i> | 0.0775 (0.0968) | 0.0619** (0.0252) | -0.00415 (0.0832) | 0.0411*** (0.00759) | -0.0107 (0.0284) | 0.000686 (0.0121) | 0.0310 (0.0373) | -0.0108 (0.0279) | 0.0280 (0.0304) | 0.0378 (0.0232) |
| <i>Cog</i> | 0.202* (0.121) | 0.137*** (0.0292) | 0.175 (0.118) | -0.0129 (0.0114) | 0.0733* (0.0393) | -0.0439*** (0.0151) | 0.0213 (0.0460) | 0.0917** (0.0388) | 0.102*** (0.0363) | -0.0672** (0.0293) |
| <i>Nat</i> | 0.0396 (0.111) | 0.0781*** (0.0275) | -0.0729 (0.107) | -0.0163* (0.00923) | -0.129*** (0.0364) | -0.0432*** (0.0121) | -0.0489 (0.0384) | -0.0600* (0.0309) | -0.0216 (0.0301) | 0.0776*** (0.0225) |
| <i>Art</i> | 0.0433 (0.0335) | 0.0371*** (0.00880) | -0.0175 (0.0290) | -0.0171*** (0.00350) | -0.0270** (0.0117) | -0.00979** (0.00458) | -0.00500 (0.0129) | 0.0160 (0.0106) | 0.00231 (0.0104) | -0.0279*** (0.00781) |
| <i>Fin</i> | 0.231 (0.188) | -0.0808 (0.0513) | 0.216 (0.182) | 0.0846*** (0.0153) | 0.375*** (0.0593) | 0.346*** (0.0254) | 0.324*** (0.0806) | 0.222*** (0.0568) | 0.0168 (0.0614) | -0.0242 (0.0437) |
| <i>Inf</i> | 0.151 (0.204) | 0.0788 (0.0506) | 0.376* (0.219) | 0.164*** (0.0194) | 0.268*** (0.0819) | 0.160*** (0.0245) | 0.246*** (0.0736) | 0.0919 (0.0722) | 0.149*** (0.0571) | 0.194*** (0.0458) |
| | (0.00254) | (0.000698) | (0.00222) | (0.000185) | (0.000896) | (0.000320) | (0.00100) | (0.000990) | (0.000761) | (0.000563) |
| Constant | 4.155*** (1.199) | 6.160*** (0.322) | 6.404*** (1.100) | 5.705*** (0.108) | 4.996*** (0.396) | 4.973*** (0.144) | 3.966*** (0.430) | 4.754*** (0.347) | 5.192*** (0.349) | 5.653*** (0.257) |
| Observations | 5,341 | 25,342 | 3,196 | 226,318 | 21,591 | 109,530 | 17,654 | 21,336 | 16,327 | 29,928 |
| R-squared | 0.231 | 0.388 | 0.207 | 0.272 | 0.151 | 0.256 | 0.108 | 0.212 | 0.308 | 0.219 |

Robust standard errors in parentheses (cluster at firm level)

*** p<0.01, ** p<0.05, * p<0.1

Control variables include: Year, Firm's Size, Regional Location (North - Center -South), Firm's Age

Appendix B

B.1: Semi-structured interview questionnaire

TOPIC GUIDE – TERRITORIAL CAPITAL AND FIRM PERFORMANCE (Main questions and Prompts)

General Introductory Questions

Check Info

- *Growth*
- *Number of employees*
- *Constitution Date*
- *Type of society*
- *Client base*

1) Could you provide some details about the recent performance of your firm?

- *What has been the strongest element of performance?*
- *Is there evidence of recent growth?*
- *Has there been any drop off in growth and/or performance?*

2) With respect to the strong performance your firm has experienced, could you please identify the most important factors responsible for this?

- *Internal factors (e.g., role of entrepreneur/leadership team/strong growth orientation etc.)*
- *External factors (e.g., market conditions; regulatory conditions; financial crisis; governmental support etc.)*

Questions of Territorial Capital

3) What role does the local environment play in this success?

4) What role does the local context play in facilitating the availability of skilled people at local level?

- *Is it easy to find the right people with the right skills at local level?*
- *How easy is to recruit appropriate of “low-skilled” and “high-skilled” employees at local level?*
- *Have the people you work with received education from local universities or local professional schools?*

5) How does the local context help and stimulate your ability to create and innovate?

- *Is it easy to find creative people at local level?*
- *What role does the region (or the province) play in facilitating the availability of creative people at local level?*

6) How useful is it for your business to collaborate with local firms?

- *Is it easy to cooperate at local level with other business or/and local institutions?*
- *Is this cooperation based on informal processes (you are friend of...) and/or is it based on formalized processes (e.g., consortium)?*

- *How do you think the local context stimulates a cooperative environment?*

7) How do local culture and local traditions influence your business?

- *How do local habits influence your firm's performance?*
- *What about the local mentality? (Open minded vs closed minded, individualistic society vs sharing society etc.)*
- *Do you think historical traditions influence your business? (e.g., the existence of a particular folk festival etc.)*

8) How does the general sense of civic engagement and civil responsibility within the local population influence your business?

- *Do you think the level of civic engagement facilitates the relationship with your employees, clients or business partners?*

9) Does trust influence your business? How?

- *Do you think the level of trust between you and your suppliers has an impact on your business activity?*
- *Do you think the level of trust between your business partners has an impact on your business activity?*

10) What role does the local natural environment play in your business?

- *For interviews in Milan: Does the location of your firms and its proximity to the Alps, lakes or other natural elements, such as forests or rivers influence your performance?*
- *For interviews in Palermo: Does the location of your firms and its proximity to the sea, mountains, forests or other natural elements influence your performances?*
- *The conditions of the local environment to enable the production of particular crops?*

11) What role does the availability of natural resources play upon your business?

- *Is there any other particular natural resource (water, oil, etc.) which influences your firm's performance?*

12) How does the artistic heritage influence your business?

- *Does the fact of being located in an area with a lot of monuments/historical urban influence your firm's performance?*
- *Does the existence of a special site (e.g., UNESCO area) influence your firm's performance?*
- *Does the quality of the nearby landscape influence your firm's performance?*

13) Do the inherited knowledge and local production/business traditions influence your business?

- *Does your firm rely on any particular inherited or traditional process for its operation?*
- *Do you use any particular production process which is linked to the history of this area?*
- *Do you use any particular production process which is linked to the history of your family?*
- *Is your business activity linked to longstanding traditions?*

14) How does the access to private or public finance influence your firm's performance?

15) How do transport infrastructures influence your performance?

16) How do digital infrastructures influence your performance?

17) How do local authorities influence your performance?

- *Does the local government play a role in supporting your firm?*
- *Chamber of commerce? Universities? Other public or private Institutions?*

18) Are there any laws or regulations at local level that influence your firm's performance?

19) How crucial is it for your firm's performance to be located in this particular place? What are the defining locational factors accounting for your firm's performance?

20) Could your firm be potentially located in another place outside this region? If no, please explain why. If yes, what key features would any new location require?

21) Are there any aspects of the local territory which are 'unique' and critical for your firm performance?

22) Do think your company is contributing to the valorisation of local resources in any way? If yes, please explain how

- *Are you contributing to the valorisation of any natural territorial resource?*
- *Are you contributing to the valorisation of any historical/ cultural territorial resource?*
- *Are you contributing to the valorisation of any social territorial resource?*
- *Do you think you are contributing to the sustainable development of this area?*

Appendix C

C.1: An example of the thematic analysis and coding process undertaken

As explained in 6.2, after transcribing and reading the interviews, different key themes were identified in each province. The analysis was conducted by codifying responses with the relevant text in **bold italics**, and the code level and type of response below the specific text pertaining to it, as follows:

- First Level Code: generated from the conceptual framework and were mainly driven by the interview questions following a deductive top down approach;
- Second Level Codes: they were not driven by the interview questions but developed from the emerging findings.

Similar codes have been grouped under the same category or 'theme' ensuring a sufficient level of homogeneity and organized in an Excel file (see Box C1 and Table C1) following a semantic approach; for each theme responses were also divided in two categories:

- Positive response: the owner/manager highlights a positive contribution of the local context with respect to the considered theme;
- Negative response: the owner/manager highlights a neutral or negative contribution of the local context with respect to the considered theme.

Box C1⁶⁶:

Example of coding responses: Extract from the interview with the manager of Central Hotel (MI)

Introduction

In a medium-sized hotel company, employees are often coordinated by more people who report to a single direction office, but in the case of *** we have three different offices. One is in charge of the hotel, from the commercial and administrative management to the reception, booking activity and sales and marketing; one is in charge of the bar, restaurant and general catering service; one takes care of the cleaning services, guardians and bellhops. In the hotel, we have about 37/38 employees whose numbers slightly increase in May when we open a terrace with a bar and restaurant on the top floor; thus, we require another four seasonal employees.

⁶⁶ Please note, all irrelevant information is omitted (greetings, presentations, discussions not relevant to the topic of the interview)

| |
|--|
| <p><u>Could you provide some details about the recent performance of your firm?</u></p> <p>The hotel was opened in 2010 in an extremely stunning location which is the historical centre of Milan. The hotel has intercepted a mood and a feeling which is the 'eco-sustainability'; this is a value that is now very much appreciated by the market; in just 14-15 months it has achieved a great performance that has increased exponentially and geometrically (occupation, ADR, REPAR all performance indexes), bringing the hotel to its maturity during the year of Expo. This event was like a comet star, a sort of London Olympics that lasted six months, instead of three weeks. <i>Expo created widespread benefits to Milan. In 2010, Milan was still considered an industrial place for business trips. Today it has its core business in touristic hospitality. Thus, in the last few years, we have become the third tourist city of Italy, after Rome and Venice and we overtook Florence. Milan has entered the tourist circuit, not so much as an iconic city like Rome or Venice, but it is increasingly becoming a 'trendsetter city' that leads the way in design, fashion and innovative trends, this aspect is particularly appreciated by tourists that are not only interested in beautiful landscapes but also in discovering new life styles.</i> Milan is doing well and consequently, the hotel is located in a happy city and in a happy island of a happy city, the Old Town; thus, it has been able to improve all of its performance indexes.</p> |
| <p>Second Level Code/ Positive Response: ●The n. of events organized in town and the existence of a 'trendsetting atmosphere' stimulate the generation of new ideas and create new business opportunities</p> |
| <p><u>What role does the local context play in facilitating the availability of skilled people at local level?</u></p> <p><i>The territory is appealing; everyone wants to work in Milan, who loves this job, because Milan is a point of reference. Milan is always a few years ahead compared to the rest of Italy, with respect to adoption of technologies and buy/sell philosophies; this represents a strong attraction for mid-top management profiles; maybe everyone would prefer to work in a beautiful hotel in Otranto, with beautiful landscapes and lifestyles, but if you really want to acquire knowledge about new trends and international sales, it is better to come to Milan which brings you this know-how immediately. So, the territory stands alone; each job offer corresponds to one hundred times demand. I do not need, as happened in other experiences during my career, to ask the territory to help me in finding people; here it is exactly the opposite: the supply of workers is huge. I don't have to ask for people; I have to turn them away.</i></p> |
| <p>First Level Code/ Positive Response: ● The local context is an attractive place for skilled workers. This increases the supply of skilled employees/reduces training and recruitment costs</p> |
| <p>[Continues from above question] Everyone is resident in Milan province. <i>But now the mix of cultures of the staff is multifaceted. There is a strong female presence; today entire units are in the hands of women, whereas management positions and chefs are still a privilege of the male gender. This is work that requires a type of passion that often belongs to males. The mix of culture existing in Milan makes people available</i></p> |

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| <p><i>who speak several languages. Italians barely speak English, while foreign people, in particular</i> those coming from Eastern Europe, speak up to four different languages. For some hotels, Chinese and Arabic is also necessary. Speaking Russian and Arabic is essential. So, female gender wins; multiculturalism wins but the common denominator is a residence within 30/40 km.</p> |
| <p><i>Second Level Code/ Positive Response:</i> ● The multicultural environment in Milan and the availability of immigrant workers provides additional skills in the market. This increases the supply of skilled employees/reduces training and recruitment costs</p> |
| <p><u>How does the local context help and stimulate your ability to create and innovate?</u></p> <p><i>Creativity is stimulated thanks to the competition.</i> *** is an individual hotel; it is not a chain; it does not have a brand that introduces it into the market (such as Bulgari or Armani), so when you are the 478th hotel that opens in Milan, the question is: do we really need it? Yes, we need it if the hotel transmits something special. The singularity of this hotel is the eco-sustainability, music; if you want to conquer a market niche and become famous worldwide (almost as if we were a chain), creativity and marketing are essential.</p> |
| <p><i>First Level Code/ Positive Response:</i> ●A vibrant competitive environment stimulates the generation of new ideas</p> |
| <p>[Continues from above question] <i>Every three months, we have to invent something new to differentiate from the others so the guests can talk about us, and the more people talk, the more the hotel is successful. The important thing is that these behaviours are approved by customers and that customers perceive a high reputation because once achieving good results, companies cannot think any more about keeping this position forever, because I can tell you, in the last year and half, 18 new hotels have opened, all five stars, and if you do not wake up five minutes before, they overwhelm you with their economic strength and your name disappears behind the others.</i></p> |
| <p><i>First Level Code/ Positive Response:</i> ●A vibrant competitive environment stimulates the generation of new ideas</p> |
| <p><u>How useful is it for your business to collaborate with local firms?</u></p> <p>Suppliers are very important; you need qualified suppliers; you have to choose and select them to give a service which is consistent with your vision. <i>Relations with local providers have a primary role; we set up an agreement with farms located in Parco del Ticino so we can receive fresh products every day ...we can avoid big distribution that brings low cost products but pollute the planet.</i></p> |
| <p><i>First Level Code/ Positive Response:</i> ●Collaboration with local firms ensures a better control over raw materials quality and guarantees environmental sustainability. It Increases products quality and firms' reputation</p> |
| <p>[Continues from above question] These are huge trucks from Rimini or Perugia; they bring you low priced products but pollute the planet just to get you to the toilet paper. Having said that, relationships are also determined by tourism policies. The hotel</p> |

is not a 'room'; we are not a 'sleeping businesses' but a 'hospitality business'. Hospitality now requires that you are able to give instructions to your guests about what your territory proposes and not just because you are a nice person. So, companies with whom you need to collaborate are those related to culture and cultural entertainment, who come to Milan can find many shops (and we could consider fashion and design shops as cultural entities as well). However, these are not active interlocutors for us. Even if we did not tell clients that shops are open, they would know anyway when there are sales. On the other hand, ***if we tell them that the Basil of San Maurizio in Magenta is considered the second Sistine Chapel of Italy, we can do this thanks to our relationship with Fai, Touring club, Brera Pinacoteca. This allows us to make clients aware of something that they wouldn't be able to discover alone.*** You are able to tell them things that are not imaginable, not the existence of the usual 'last supper', but for example, in front of the last supper, Leonardo's vineyards had a huge success. They have genetically recreated the vine donated by Francesco Sforza to Leonardo; so, you enter a 1500 house and see the same vine that Leonardo received as a gift and this recreates a multisensory experience. Nevertheless, the most visited museum in Milan is San Siro or people come to Milan for those sports values that are somehow transversal; so, they want to go to San Siro.

First Level Code/ Positive Response: ● Relational capital is important to offer better products/services, to facilitate production/sales, to reduce transportation costs

How does local culture and local traditions influence your business?

If I were in a hotel in a very small town where there is the 'Saracino' festival, it is clear that when there is the Saracino festival, more guests come to Milan, but thank God here there is a calendar of continuous events. Until some years ago, months such as January and August were a bit dead; today there are tourist attractions; the only problem is that there is no coordination between the different entities that govern the culture in the city

First Level Code/ Neutral Response: ● Traditional celebrations attract customers increasing firms' sales.

[Continues from above question] ***We often find ourselves having contemporary exhibitions that would suffice, one at a time, to generate 200,000 visitors (simultaneously Raffaello, And Wharold and Modigliani).***

Second Level Code/ Positive Response: ● Artistic capital has a potential to attract customers and works as marketing tool

How does the general sense of civic engagement and civil responsibility within the local population influence your business?

Mmmm...I don't know...tourists tell us that after visiting Rome in Florence and Venice, Milan works well. The perception of social life is wide. Lombardy with 11 million inhabitants is the second richest region in Europe. ***From a touristic point of view, we do not have the same beauty of a postcard city; however, tourists are astonished to find cleanliness, efficiency, and order; so we are becoming an Italian anomaly. Anyway, in***

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| <i>the last 4 years it has changed a lot; before it was a bit still.</i> |
| <i>First Level Code/ Positive Response:</i> ●Civic sense has a positive value but it does not emerge as an essential asset that directly influences firms' performance |
| <p><u>What role does the availability of natural resources play upon your business?</u></p> <p>It's in our DNA. This is a no polluting hotel that does not emit CO2. It could have been built in a mountain valley or on a hill in Siena, not in the historic centre of Milan. Instead, no. Milan has as incredible wealth under its feet that is water. After the disappearance of large companies that drained millions of hectolitres of water for iron or steel products, the aquifer has begun to rise in the last 20 years to the point that we can find water at 24 metres and not 240 metres. This causes major problems with the waterproofing of metropolitan lines. <i>But this water is a free, efficient source of energy available to everyone. This hotel uses the water that we collect through springs with a very complex process; it produces the comfortable warmth that we are enjoying right now, without a thermal power plant without a cooling centre, totally free of the traditional hydrocarbon bills. Water is then discharged into the river that runs along this road. You do not have CO2 production and we do not pollute the environment. From this choice, we decided to share eco-sustainable behaviours with our guests and this is the common denominator for our guests. We have, LED lighting, certified suppliers, a vegetable garden for the production of our products. Guests choose the hotel because it's cute, because it's close and because they share the philosophy of the hotel; 85% of our guests are not Italians.</i></p> |
| <i>First Level Code/ Positive Response:</i> ●The use of local natural resources improves eco-sustainability. It increases reputation, decrease costs |
| <p><u>Do the inherited knowledge and local production/business traditions influence your business?</u></p> <p>We built a roof garden right below the pinnacles of Duomo to give customers Km0 products and this is important also for our communication. This is done together with other singular initiatives such as preparing menus following our guests' blood groups, with the awareness that it is now a common medical culture that food intolerance is often related to the blood group.</p> <p><i>Another activity is to create corners for people with food problems, lactose free, yeast free, etc. and in the coming weeks, I contact the University of Parma that produces ancient seeds. Our products, before being hybridized by the work of peasants over the centuries, were different. For example, tomatoes were yellow, and we will provide tomatoes as they were originally, or strawberries were completely white, black cabbages; in 2016, we will introduce elements telling a story.</i></p> |
| <i>First Level Code/ Positive Response:</i> ●Local ancient traditions attract customers and increase firm' sales |
| <p><u>How do transport infrastructures influence your performance?</u></p> <p>Infrastructures...do you mean transport? The Japanese for twenty years were the first foreign customers in Milan; then one day the air company decided that they should</p> |

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| <p>not land in Milan but in Frankfurt and so there are 1/10 Japanese people in Milan and 9/10 are visiting the <i>rurh</i> that is not just like going to Lombardy. We depend on the means of transport. <i>Ryanair decides the life and death of entire territories, in case local institutions do not pay an amount of money for each a passenger. Milan does not need to do this; Milan has the opposite problem; often companies want to land here. Infrastructures, thanks to Expo, have been improved; after 20 years of zero investments they have made two underground lines.</i> After Expo, the world for inertia wants to come to see Milan even after L'Expo... and we hope this can continue. Milan is a beating heart reality; big international groups want to buy in Milan because we still represent a fairly stable reality; we are not disturbed by terrorist movements; there is efficiency in northern Italy and we are close to everything, and therefore with good market prices, you can do good deals.</p> |
| <p><i>First Level Code/ Positive Response</i> ●The good quality of transport Infrastructures promotes exchange, decrease transport cost, increases business opportunities</p> |
| <p><u>How do local authorities influence your performance?</u></p> <p><i>Zero. The political world does not talk with tourism but with commerce. They talk with taxi drivers or sellers but not with hotel entrepreneurs. The councillor of tourism is much more interested in dealing with traders. We had a big crisis with manufacturing. If the employees of *** (socks producer) complains, they make television programs etc. Meanwhile hotels are neglected, even though everyone says tourism is essential. It is a too fragmented an industry; there are 35,000 hotels with an average of 27 rooms each; only four are chains and the 6% have more than 100 rooms. Only chains can talk to the political world because they represent votes; 5,000 angry taxi drivers can block the city, while 500 hotels, no.</i></p> |
| <p><i>First Level Code/ Negative Response</i> ●Local public organizations show poor attention towards firms' needs and this does not support business</p> |
| <p><u>Are there any laws or regulations at local level that influence your firm's performance?</u></p> <p><i>Each region has an individual touristic strategy; there is no a national law, every region acts on its own ...this is dramatic; when you go abroad, you sell the whole nation of Spain, Turkey Egypt. In Italy, you can see the advertisement "Lamezia Terme say hello". We are fragmented in a globalized world; we don't have any incidents; we are the country with the largest number of UNESCO sites;; we are the country of biodiversity but in reality we are not able to promote the Italy way of life</i></p> |
| <p><i>First Level Code/ Negative Response</i> ●Inadequate and contradicting laws, bureaucracy and rigidity are negative for business activities as increase firms' costs</p> |
| <p><u>Could your firm be potentially located in another place outside this region?</u></p> <p>This is a service; it is as if it were a thermometer inserted just below the armpit of a body that only rises if the body is alive. The two important sectors are the industrial one, which guarantees the volume of the business trip, and the tourist movement. These are our polar stars. During every industrial or political crisis in the world, tourism is the first</p> |

industry to be affected; so, I can be the best businessman in the world but if I throw down the American Twin Towers, they are no longer there. ***Despite this, in the last 6 years of crisis, the tourism sector has been floating because tourists are growing world-wide, we are 1 billion and 400 million tourists and this is an important issue. Then tourism cannot be relocated as other sectors are. Tourism forces you to come here. Milk, fashion industries, cheese are in the hands of multinationals, while tourism cannot be delocalized.***

This response is not clear; however, it seems that the manager would not relocate in other places.

Table C1: Excel file used to count codified responses

| Main themes in Milan and Local context effect on firms' performance | | CentralHotel(MI) | |
|---|---|------------------|---|
| | | P | N |
| Creativity | <ul style="list-style-type: none"> •The n. of events organized in town and the existence of a 'trendsetting atmosphere' stimulate the generation of new ideas and create new business opportunities •A vibrant competitive environment stimulate the generation of new ideas •The existence of relational capital and the proximity of innovative firms stimulate the generation of new ideas and create new business opportunities | x | |
| Infrastructure | <ul style="list-style-type: none"> •The good quality of transport Infrastructures promotes exchange, decrease transport cost •The good quality of digital Infrastructures promotes exchange, decrease transport cost. However there is a digital divide between Milan and towns around Milan that must be overcome | x | |
| Financial Capital | <ul style="list-style-type: none"> •Access to credit is difficult in particular for young entrepreneurs. This hampers firms' growth •No all entrepreneurs need access to credit •Access to public finance is difficult and calls are not well designed | | |
| Cognitive/ Intellectual Capital | <ul style="list-style-type: none"> • The local context is an attractive place for skilled workers. This increases the supply of skilled employees/reduces training and recruitment costs • The multicultural environment in Milan and the availability of immigrant workers provides additional skills in the market. This increases the supply of skilled employees/reduces training and recruitment costs • Local competitors play an important role in training employees. This increases the supply of skilled employees/reduces training and recruitment costs •The local education system is effective in training employees | x | |
| Social Capital | <ul style="list-style-type: none"> •Relational capital is important to offer better products/services, to facilitate production/sales, to reduce transportation costs •Collaboration with local firms ensures a better control over raw materials quality and guarantees environmental sustainability. It Increases products quality and firms' reputation • Relational capital stimulates the generation of new ideas and create new business opportunities •Trust improves relations with providers, employees and clients, creating harmony and strengthening entrepreneurial self-confidence. •Civic sense has a positive value but it does not emerge as an essential asset to firms' performance | x | |
| Cultural Capital | <ul style="list-style-type: none"> • Open minded clients, work oriented employees influence the firms' supply of products and services and favour job oriented culture •Local ancient traditions attract customers and increase firm' sales • The local entrepreneurial culture positively affects the business. It attracts clients from other regions | x | |
| Institutional Capital | <ul style="list-style-type: none"> •Local public organizations show poor attention towards firms' needs and this does not support business •Inadequate and contradicting laws, bureaucracy and rigidity are negative for business activities as increase firms' costs | | x |
| Artistic Capital | <ul style="list-style-type: none"> • Artistic capital has a potential to attract customers and works as marketing tool •Artistic capital is a source of inspiration and creativity • Artistic Capital may restrain infrastructure development | x | |
| Natural Capital | <ul style="list-style-type: none"> •The natural environment does not affect business performance •Agricultural raw materials quality is important to offer better products •The use of local natural resources improves eco-sustainability. It increases reputation, decrease costs | x | |

Note:

P=The local context helps; N=The local context does not help (neutral or negative role)

If firms give contrasting opinions about the same issue, a response to P and N was assigned at the same time